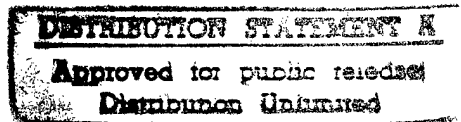


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10 August 1984



# USSR Report

AGRICULTURE

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10 August 1984

# USSR REPORT

## AGRICULTURE

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### FIELD WORK MADE MORE SYSTEMATIC IN AKTYUBINSK OBLAST

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 9 May 84 p 1

[Article by A. Sukach, deputy chief of oblast agricultural administration, Aktyubinsk Oblast: "Increasing What Has Been Achieved"]

[Text] The contribution of Aktyubinsk farmers during the 11th Five-Year Plan to the country's grain balance is considerable. As is known, the oblast's five-year plan was completed in 3 years. At this time, all thoughts and aspirations of the grain growers are directed at the attainment of new and bigger advances. For 1984, the oblast's farms plan to produce no less than 1.5 million tons and to sell 800,000 tons of grain to the state.

All efforts are now concentrated in the oblast at an organized and qualitative performance of spring field work.

Much has been done since autumn for the coming year's harvest. On the farms, land plowed in the fall has been fully prepared, basically with blade cultivators. All sovkhozes and kolkhozes are provided with seed of which 85 percent meets first and second class requirements. A total of 1,230,000 tons of organic fertilizer has been taken out into the fields.

In the oblast, special attention is being given to the introduction of a scientifically-based system of farming. Last year, for example, crop rotation was utilized in the amount of 76 percent. Now the task is to utilize it completely.

Well-organized seed cultivation is a major means of boosting field productivity. We are engaged in working on the propagation of "Saratovskaya-55," a strong variety of wheat, which increases per-hectare yield from 1.5 to 3.0 quintals. The "Donetskiy-8" variety of barley has well proved itself and will occupy this year more than 160,000 hectares.

An objective has also been set of improving economic work on each farm and carrying out a mass transition to the collective contract. The experience of sovkhozes imeni Dzerzhinskiy, imeni K. Marx, Kuduksayskiy, Novorossiyskiy, Kolkhoz imeni Zhdanov and other farms discloses the advantages of the new organization of labor. Brigades and links working with the collective contract show a production increase of 20-40 percent or more. Labor

productivity is being sharply boosted, and machine operators' earnings are increasing. This year, about 60 percent of tractor and field-working brigades and links are working according to the new method.

At each kolkhoz and sovkhoz, field work is done on the basis of production charts. Harrowing is being completed in 3-4 workdays. Eight to 10 days are being allotted for sowing. This means that it is necessary to sow each day on 180,000-200,000 hectares. The volume of work we planned is being fulfilled. Farms of the southern zone--Bayganinskiy, Irgizskiy and Chelkarskiy rayons--have already completed spring sowing. The sovkhozes of Uilskiy Rayon are preparing the ground for the sowing of late crops: millet, Sudan grass and silage corn.

The year's weather conditions are retarding somewhat field-work tempo, especially in the oblast's northern rayons. It is necessary to value every hour. The experience acquired on the farms helps to do the work quickly and with a high level of quality.

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## MAJOR CROP PROBLEMS AND WEATHER REPORTING

### COLD WEATHER PROBLEMS IN VIRGIN LAND AREA

Moscow TRUD in Russian 25 May 84 p 1

[Article by TRUD correspondent V. Gafiatulin, Kustanay Oblast: "In the Virgin Fields--Spring Concerns of Farmers"]

[Text] In the virgin-land oblasts of Kazakhstan, spring has never presented special problems to farmers. But no spring like this year's can be recalled even by those who first worked the virgin lands. The third 10-day period of May is here, but it is cold, northerly winds are blowing.

The grain growers are as nervous as runners at the starting line: they are ready to break out, but the command is not forthcoming. The republic's well-known grain grower, Hero of Socialist Labor Nikolay Fedorovich Pastukhov, a brigade leader at Stantsionnyy Sovkhoz, calms down the machine operators. The veteran has sat at the controls of a tractor since the first days of the legendary virgin-land epic, and now it is twenty years that he heads a brigade that is one of the first in the oblast that has started to work according to a single contract.

The farmers wanted to commemorate the virgin-land jubilee year with a good harvest. They repaired the equipment and tools for cultivating the soil ahead of time and carried out the entire complex of presowing work at a high level of quality.

Slow warming of the soil has been holding back sprouting of weeds and the most vicious of them--wild oats. But putting grain crops on such fields prior to the sprouting of the weed and its destruction with presowing cultivation would be doomed to failure. This means that it is necessary to wait. At the same time, they must not go beyond the optimal time period: sowing of spring wheat has to be completed by the last week of May, otherwise ripening of the grain will be delayed till autumn frosts.

The field of the main granary of Kazakhstan--Kustanay Oblast--is tremendous: 5 million hectares. Eight hundred unregulated links started sowing. They are working almost 4 million hectares. On the eve of the sowing, the best of them, including Pastukhov's brigade, addressed the oblast's farmers with an appeal to achieve a yield of not less than 20 quintals per hectare.



The peculiarities of the spring dictate higher demands on the quality of field work. In Kustanayskiy Rayon, units work in two shifts. The fields are cultivated, sown and immediately packed. Cultivation for the most part is done at night so that less moisture evaporates. All the machine operators work, giving all they have and fulfilling one and a half shift norms.

In the oblast, on the eve of the sowing reviews and competitions of field camps took place. Trade-union organizations concerned themselves with creating the necessary living conditions. Auto clubs, agitation brigades and agitation trains are trying to make the brief minutes of rest interesting for the grain growers and to uplift the mood of the men.

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## MAJOR CROP PROGRESS AND WEATHER REPORTING

### BRIEFS

**MARMOT PROBLEM**--In Aktyubinsk Oblast, the little marmot is to be found everywhere, and the struggle with it is a first-priority problem of our service. Marmots come out of their sleep and emerge on the surface of the ground toward the end of March and the beginning of April. They get into heat immediately and stay that way for 10-15 days. In a month the females give birth to 6-7 young. Emergence of the young on the surface of the ground is observed in the second half of May; they begin inflicting damage in the beginning of June. In the second half of August, the marmots go into hibernation. But prior to this they can inflict significant damage to agriculture. To prevent this from happening, it was found necessary in 1983 to deal with them on an area of 890,000 hectares, including using the chemical method on 513,000 hectares and the mechanical method on 163,000 hectares. [Text] [Moscow ZASHCHITA RASTENIY in Russian No 4, Apr 84 p 35] [COPYRIGHT: Izdatel'stvo "Kolos", "Zashchita rasteniy", 1984] 7697

**KAZAKH EXPANDED RICE SOWING**--Alma Ata, 3 May (TASS)--Massive spring sowing is underway in Kazakhstan. Today rice growers joined in. Kazakhstan is the northernmost rice-growing area in the country. Machine operators will have to cultivate and sow about 140,000 hectares of engineer planned fall-plowed land--5,000 hectares more than last year. Grain fields were expanded through the return to crop rotation of saline and marsh lands. Two-three years were spent in getting them ready depending on the technology recommended according to the composition of the soil. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 4 May 1984 p 1] 7697

**KAZAKH GRAIN, BARLEY PLANTING**--Alma-Ata, 5 May (TASS)--The farmers of Kazakhstan are laying the foundation for a big harvest in the year of the 30th anniversary of wide-scale use of virgin land. Today they have begun the sowing of grain crops on the third million hectares. Special attention is paid everywhere to the quality of work. The farmers are sowing wheat and barley every fourth hectare on fallow land. Almost half of the sowing is being conducted simultaneously with the application of mineral fertilizer in the rows. The recommendations of area systems of farming in regard to sowing periods are being strictly observed. Detachments conduct sowings in two shifts; their material and technical support has been efficiently arranged. Output of the units is 20-30 percent above norm. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 6 May 84 p 1] 7697

SNOW RETENTION FOR INCREASED YIELD--Gulistan--An unusual agricultural technique for Uzbekistan was the use of snow retention in the field by the farmers of Ilichevskiy Rayon's farms. Precipitation was generous this winter in Golodnaya Steppe. The cotton growers decided to use this gift of nature for adding to their yield. [Text] [Moscow TRUD in Russian 28 Feb 84 p 1] 7697

KARAKALPAK RICE SOWING--Nukus--Uzbekistan's chief rice granary, Karakalpak ASSR, has started its sowing. [Text] [Moscow TRUD in Russian 25 Apr 84 p 1] 7697

RICE SOWING FIELD WORK--Nukus, 24 May--The late spring this year has moved the time period for sowing rice in Karakalpak ASSR. For this reason, the farmers make every minute count as they do field work in the complex. The leading position in the competition of the autonomous republic's rice growers is maintained as in past years by the largest specialized Sovkhoz imeni Chapayev. All the sovkhozes, striving to lay the foundation for producing 350,000 tons of rice grain, are hurrying to complete in optimum time periods the spring field work. [By B. Kuryshv] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 25 May 84 p 1] 7697

INCREASED RICE YIELD PLANNED--Tashkent, 17 May--Rice planting on check fields [cheki] in Karkalpak ASSR has been carried out on 75,000 hectares of irrigated plowland. Two hundred detachments completed the sowing. Machine operators worked in two shifts. In the opinion of specialists, the quality of the work is good. Collectives of many farms and brigades have undertaken to grow 50-60 quintals of rice per hectare. On the whole, the rice growers of the autonomous republic plan to produce this year 350,000 tons of the white kernel. Farms of the southern regions of Uzbekistan already have sprouts in the check fields. In Surkhan-Darya Oblast, the brigade of USSR Supreme Soviet Deputy Kurban Karakhanova has started to look after the sowings. On the basis of the initiative of this collective the rice growers of the sovkhozes have initiated a competition to produce an 80-quintal yield of the grain from each hectare of the planting. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 19 May 84 p 1] 7697

UZBEK GRAIN CROP PROGRESS--Termez, 11 May-(TASS)--The grain fields have yielded a rich harvest to the grain growers of Surkhan-Darya Oblast, who have started to harvest winter grain crops. At Kolkhoz imeni Kuybyshev in Angorskiy Rayon, the combines were brought out to the fields occupied with barley. Here it is planned to collect no less than 40 quintals of grain per hectare, considerably more than the plan from irrigated land. Almost 20,000 hectares of irrigated land are occupied in the oblast with winter barley and wheat. Good care of the sowings has been organized. The grain growers have ensured the accumulation of a big harvest. Soon other farms of the Surkhan Valley will begin harvesting. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 12 May 84 p 1] 7697

BARLEY HARVESTING IN PROGRESS--Termez, 19 May--Before climbing to the steering-wheel bridge, Yuldash Nurinov crushed several barley ears between his palms. The grain was large and full. Just what was needed! At Kolkhoz imeni Kuybyshev in Angorskiy Rayon, combine operators Ch. Khaliyarov and T. Bazarov together with Yu. Nurinov cut down 10-12 hectares each and threshed an average of 50-52 quintals of grain per hectare. At neighboring kolkhozes imeni 50-Letiye Oktyabrya and Kyzyl Yulduz the barley harvest is also exceeding the plan. The harvesting front already encompasses farms of Leninyulskiy, Sherabadskiy, Termezskiy and

Gagarinskiy rayons. Hundreds of units are harvesting barley as the winter wheat is coming up. Many brigades, working with a collective contract, plan to get not less than 100 quintals of grain per hectare. The cleared fields are being replowed, fertilized and sown with corn. A third crop on such fields will be fast-ripening fodder grasses or prewinter sowings of fodder mixtures. Grains are also ripening in other areas of Uzbekistan. But harvesting equipment is not ready everywhere. On the farms of Dzhizak, Navoi and Fergana oblasts one-third of the combines have not yet come out of repairs and monitoring checks show that a part of the units brought into the fields needs to be repaired again. [By Z. Uzilevskiy] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 May 84 p 1] 7697

KAZAKH SOWING COMPLETED--Alma-Ata, 2 Jun (TASS)--Kazakhstan's farmers completed today their spring field work in an optimal time period and at a high agrotechnical level. This was carried out on the republic's giant spring field, occupying more than 28 million hectares. Twenty-five million of them were assigned to grain crops. In this connection, 15 million hectares--considerably more than planned--were assigned to spring wheat. Rice areas, compared to last year, have been expanded. There were also planted more than planned legume crops, sugar beet, cotton, vegetables and potatoes. This year more than 10,000 field-working brigades, which have gone over to the collective contract, are leading the farmers' struggle for having each field awarded the Seal of Quality. Preparation of the land in the fall played a particularly important role in speeding up work under the conditions of this year's cold, late spring. The grain growers carried out harrowing in time and quickly embedded seeds in the ground. On the average, 1.5 million and more hectares were sown in a 24-hour period. On most fields, good sprouts have already been produced. In the spring field, care of the sowings is being conducted on a broad front. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 3 Jun 84 p 1] 7697

CHIMKENT OBLAST RICE SOWING--The celebration of May Day was commemorated by Chardara's farmers by sowing the last hundreds of hectares with rice. Exemplary readying of equipment, a well-organized repair and technical service and two-shift work in the fields made it possible, compared to last year, significantly to increase the tempi of all technological operations. The oblast sows daily 1,100-1,200 hectares. Big changes are now occurring in the Kyzyl-Kum area, which has given life to Chardarinskiy Rayon. As a result of recultivation and restoration of land removed previously from turnover, areas under rice have been expanded and now exceed 21,000 hectares. In the past 5 years, rice yield has increased here by 14 quintals to the highest level in Kazakhstan. Farmers' commitments for this year are to take in for the rayon as a whole 60 quintals of rice per hectare and to sell no less than 90,000 tons of it to the state. The farmers of Chimkent Oblast have pledged to sell to the state this year 400,000 tons of grain. Rice is to make up almost one-fourth of this. At the farms, they are trying to do everything possible to see to it that the assumed commitments are successfully fulfilled. The gates of Kyzyl-Kum main canal have already been completely opened. One hundred cubic meters of water are supplied to the fields each second. Exactly as much as required by technological norms. The struggle for the harvest of the fourth year of the five-year plan continues. [By A. Utyaganov] [Excerpts] [Moscow SEL'SKAYA ZHIZN' in Russian 2 May 84 p 1] 7697

## LIVESTOCK FEED PROCUREMENT

### NEW FEED PROCESSING EQUIPMENT DETAILED

Vil'nyus SOVETSKAYA LITVA in Russian 20 May 84 p 3

[Article by Vil'khel'mas Lapenas, deputy director of GEKI [Main Experimental-Design Institute for Grass- and Straw-Processing Machinery], candidate of technical sciences and meritorious engineer of the Lithuanian SSR: "The Feed Industry"]

[Text] In many enterprises of our country the machines and equipment that are in use to prepare grass meal were developed by the scientists and designers of the Main Experimental-Design Institute for Grass- and Straw-Processing Machinery --GEKI. Technological lines and shops for the production of full-ration granulated and briquette feeds, units for increasing the nutritive value of straw and for the preparation, storage and distribution of haylage and a great deal of other equipment that increases the effectiveness of livestock raising have proven themselves well.

In recent years in the institute there has been an elaboration of a series of new machine and equipment units for the preparation of high-quality feed and feed mixtures for which their developers have been included in competition for the 1984 USSR State Prize. The creations of the new generation and "feed factories" are discussed by the deputy director of GEKI, candidate of technical sciences and meritorious engineer of the Lithuanian SSR, Vil'khel'mas Lapenas.

One of the most important goals mentioned in the Food Program is increasing agricultural production output. This cannot be implemented without a stable feed base, without an increase in gross feed yield, improvements in feed quality, improvements in the nutritive balance of feeds and decreases in feed losses during harvesting and feeding to animals. The extensive utilization and increase in production of highly efficient machines and flow line technology and of equipment to prepare grass meal, granulated and briquette dry feed mixtures as well as loose feed mixtures on the basis of silage, haylage, straw and root crops with the addition of molasses and other valuable feed supplements will help to create a dependable feed base.

Here there is no need to prove the advantages and expediency of introducing progressive technology in feed production in terms of the transition of livestock raising to an industrial base. This has been proven by life itself and by practical experience within agriculture. Suffice it to say that the production of machines and equipment worked out by our institute and introduced into agricultural production for the purpose of artificial drying and the preparation of briquette feeds and their storage has enabled not only the republic but the entire country to move toward industrial feed production. By 1985 it is planned to increase the production of briquette and granulated feed mixtures to 14,240,000 tons and vitaminous grass meal and other artificially-dehydrated green feed—to over 10 million tons in kolkhozes, sovkhozes and other agricultural enterprises.

I do not want to load down my discussion of the advantages of preparing grass meal as protein-vitaminous supplements for mixed feed and feed mixtures with figures about the economic advantages of its use. I wish only to remind you that in comparison with the traditional methods of procuring feed, grass meal enables us to increase the yield of feed units per unit of area by a factor of 1.5, and of vitamins—by a factor of 5-8. In nutritive value and other feed properties grass meal is not inferior to forage grain, which allows us to partially replace it in the rations of animals and to increase their productivity by 7-15 percent. Livestock farmers became convinced of all of this through personal experience.

Until now the introduction of progressive technology for preparing granulated and briquette feeds, as well as moist loose feed mixtures, was hindered by the low productivity of existing machines which have been broken from their sets and by the absence of overall mechanization of all operations, of grinders, dosing apparatuses and feed mixers.

The collectives of our institute, of plants in the Neris Production Association and of a number of other cooperating organizations, enterprises and NIIs [Scientific Research Institute] in the country have begun to work jointly on comprehensive solutions to these problems. A broad program of scientific and experimental research was implemented, as well as experimental-design, technological and organizational measures directed at assimilating the serial production of effective machine and equipment units for preparing high-quality feeds and feed mixtures according to progressive technology.

The result of this fruitful work was the development and serial production of a number of qualitatively-new "feed factories" and "feed shops"—a set of KOPK-15 equipment for the preparation of moist loose feed mixtures with a productivity of 15 tons per hour and machine and equipment sets for the production of granulated feeds and feed mixtures with a productivity of 0.65 to 1.5 tons per hour. The ISK-3 feed grinder-mixer, AVM-0.65R and AVM-1.5A drying units, OGM-0.8A, OGM-1.5 and OGM-2.0 equipment for granulating and briquetting feed, ONK-1.5 equipment for accumulating feed and a number of auxiliary units and apparatuses have been developed for use with these. All of this technology is characterized by a high technological level and a number of original designs are utilized in it.

Simultaneously with the serial manufacture of these machines and equipment the institute is continuing to improve and modernize them in order to increase their dependability and life, to simplify servicing and to decrease energy and materials consumption.

The extensive introduction into agricultural production of machines and equipment developed by GEKI collectives will serve to accelerate scientific-technical progress within the country's agro-industrial complex and to implement the USSR Food Program in the fastest possible time.

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## LIVESTOCK

### ESTONIAN PARTY OFFICIAL REVIEWS LIVESTOCK SECTOR PROBLEMS

Tallinn KOMMUNIST ESTONII in Russian No 4, Apr 84 pp 32-37

[Article by I. Kallas, director of the Department of Agriculture and the Food Industry of the Central Committee of the Estonian CP: "Livestock Raising Remains a Shock Labor Front in the Village"]

[Excerpts] This year in the majority of enterprises in the republic there has been an improvement in the maintenance of animals being fattened, as a result of which their average daily weight gain and delivery weight increased. Whereas in 1982 average daily weight gain in cattle equalled 568 grams, in 1983 it equalled 618 grams. Last year hogs being fattened gained 465 grams daily. But the effectiveness of fattening can be even greater. Unfortunately, in all rayons enterprises still exist in which extensive fattening of cattle and hogs is carried out; moreover, the reason has to do not so much with a feed shortage as with poor work organization.

Each year there is an increase in the average live weight of sold cattle and hogs. Cattle delivered to meat combines last year weighed an average of 430 kilograms, and in Rakvereskiy and Paydeskiy rayons—even 457 and 455 kilograms respectively. At the same time in Kingiseppski Rayon this indicator equalled only 408, and in Tartuskiy Rayon—418 kilograms. Of course, economic conditions and potential productivity of livestock in kolkhozes and sovkhoses are not the same, but nevertheless the contrasts are inadmissibly distinct.

In 1983 the delivery weight of hogs comprised 106 kilograms. It was relatively low—less than 100 kilograms—in the enterprises of Khar'kovskiy and Kingiseppski rayons.

In our republic an average of 805-815 quintals of milk and 180-190 quintals of meat are produced per 100 hectares of agricultural lands. These indicators, according to which the Estonian SSR occupies a leading place in the country, attest to the extensive work to intensify and increase the effectiveness of agricultural production.

It should be said that the party organizations of the majority of kolkhozes and sovkhoses focus daily attention on the selection, distribution and improvement of skills of farm workers, on the skilful organization of their socialist competition and on the introduction of all that is new and progressive. I



will note the systematic and specific efforts to develop livestock raising by the party organizations of enterprises such as the Vyandra Experimental Sovkhoz (party committee secretary Ya. Tazane), the Kayu Kolkhoz of Raplaskiy Rayon (party committee secretary K. Toome) and the Vyaymela Experimental-Demonstration Sovkhoz-Technical School (party committee secretary U. Neylin).

But unfortunately, production indicators of many livestock farmers are significantly more inferior than the results of progressive workers. Frequently, dozens of expensive cows are in the care of chance milkmaids. Moreover, it is well known that outstanding work results can be achieved only by highly trained workers who know and love their work. This is why the dissemination of work methods and the experiences of leaders, securing cadres of livestock farmers and increasing their skills must become the daily, in the literal meaning of the word, concern of directors, specialists and especially of party organizations. Komsomol organizations should noticeably strengthen work to send young people to farms.

All of this is essential above all because upcoming goals are even more intensive and can be fulfilled only by means of harmonious joint efforts. In accordance with socialist obligations for the current year we must increase the average productivity of cows to 3,750 kilograms and the average daily weight gain in hogs being fattened to 480 grams and cattle--to 680 grams; we must sell the state 263,000 tons of livestock and poultry, 1,165,000 tons of milk and 368 million eggs. This is the minimal program, so to speak. Since the beginning of the five-year plan our republic's livestock farmers have developed a debt to the state of over 55,000 tons of meat and over 133,000 tons of milk. This is why the 12th Plenum of the Central Committee of the Estonian CP established the goal of struggling to reach the targets foreseen by the five-year plan for 1984 as concerns milk and meat production. In order to accomplish this it is necessary this year to secure a growth in the procurement of livestock and poultry of about 10 and not 3 percent as established by the plan. The volume of milk procurement should be increased by 2 percent as compared to levels achieved in 1983 (instead of by 1 percent according to the plan).

The goal to increase meat procurement is especially intensive, but nevertheless fully realizable. Last year the volume of cattle and poultry procurement increased by 19 percent. This year our feed base is not worse, but better, new work experience has been amassed and livestock farmers have a good work attitude and faith in their strength and possibilities, which are of no small importance. The reality of the goal is also confirmed by work results for the first quarter, during which assignments related to the procurement of meat and milk were overfulfilled.

In most enterprises during the winter period milk yield per cow and weight gain in animals being fattened both increased. If in some enterprises the situation has not improved, feeds are utilized inefficiently and feed losses and decreased feed quality are tolerated, this should be dealt with by means of the most serious consequences. Today our goal consists of securing a dependable foundation of productivity in preparation for the movement of cattle to summer pastures and to develop successs on the basis of inexpensive feeds.

This is not the first year that there has been a problem with summer milk. Soon cattle will again move into the pastures; it will be in a well-nourished condition owing to the full-weight feed rations during the stall period. It would be sinful to complain about milk yield during the first 3 months of the year. How will matters progress further? Last year was a record year, but this year according to socialist obligations the achieved level must be surpassed. Everything depends upon the work of our livestock farmers and its organization. The pasturing of cattle undoubtedly opens up good and new possibilities, it is just necessary to organize it properly. A cow eats 70-80 kilograms of grass daily and produces 15-20 kilograms of milk. The grass must be easily accessible, full-value with regard to feed qualities, tasty and fresh. Pastures with a 12-20 centimeter grass stand are most effective. If the grass is shorter or taller cows eat 2-3 times less of it.

In pastures with a varying composition of sod, grass begins to grow at different times and at varying speeds. By beginning pasturing on pastures with rapidly-maturing grasses, then moving cattle to mineral soils and finally to swampy pastures, we create a green conveyor that enables us to maintain cattle on pastures with optimal and full-value grass stands.

For the more complete utilization of pasture grass, systematic portional pasturing should be introduced immediately beginning in the spring, moving cattle at least 2 and preferably 3-4 times daily to plots with fresh and untrampled grass. With portional pasturing cattle receives feed uniformly and as a result fluctuations in daily milk yield disappear.

During the summer there should be a decrease in the mixed fodder fed to the dairy herd; it is intolerable to attempt to make up for lags that developed during the winter period by means of their use. Vyruskiy Rayon provides a good example. On the initiative of the Vyruskiy Rayon party committee this is not the first time that the conditions for socialist competition among livestock farmers during the pasturing period include the following--the less mixed fodder fed to cattle, the more points are accumulated. For example, if over 300 grams of mixed fodder are used for the production of 1 kilogram of milk, no points are assigned, an expenditure of 150 grams of mixed fodder for the production of 1 kilogram of milk yields 20 points and so forth. Perhaps other rayons should follow the example of Vyruskiy Rayon.

With the widespread use of year-round stall upkeep of cows there has been a decrease in attention to cultivated pastures. However, this method of maintaining cattle has not proved itself everywhere since it has not been possible to organize the necessary supply of feed to farms; animal diseases have become more frequent. Many enterprises have turned away from year-round stall upkeep of the herd. This means that we must demonstrate maximal concern about cultivated pastures--renew and improve the variety composition of sod, precisely organize top-dressing and care of sod. Then we can count on the growth of productivity of seeded grasses. This will secure a decrease in the cost of summer products and an intensification in the production of livestock products.

One way to increase gross milk production during the summer period is to increase the size of the herd. In all regions the dairy herd should be 3-4

percent larger in the summer than at the beginning of the year. It is especially essential to observe for the fulfillment of this stipulation in Khiyumaaskiy, Kingiseppskiy, Vil'andiskiy and Kokhtla-Yarveskiy rayons, where during the winter there was no noticeable growth in the herd or even a curtailment.

Our strategic course in the development of livestock raising includes the intensification of production and the continued growth of cattle productivity and of the return on each hectare of agricultural lands.

The republic's public herd consists solely of pedigree cattle. Cows are capable of producing 4,500-5,000 kilograms of milk annually; hogs--of gaining an average of no less than 550-600 grams daily. We produce much less. In order to more fully utilize the pedigree potential of cattle we must have 40-50 quintals of feed units annually per head of cattle. At the present time we have much less than this; in addition, the balance of feed with regard to protein does not meet requirements by far. It is essential to achieve a forestalling pace of development in farming, to be involved in this constantly and purposefully, to expand one's own feed base and to decisively change its structure. A certain amount of work in this direction has already been done. In 1983 the sowing area in clover and alfalfa was expanded, the proportion of peas in summer green feeds and silage crops increased and more rape began to be cultivated. All of this helped to somewhat enrich feed with protein. Nevertheless, this is only the beginning of the extensive work which will enable us to raise livestock farming to a qualitatively new level.

Thus, in order to successfully implement the tasks of the 11th Five-Year Plan and future tasks in the area of livestock raising it is essential to first of all basically improve feed production, to more fully supply the public herd, as well as livestock on the private plots of citizens, with feed. The key problems in the development of livestock raising during the current decade are the intensification of feed production and the expansion of stands of field crops that are rich in protein.

For various reasons during the last decade we were able to procure only 80-85 percent of the needed feed, including 70-75 percent of the feed needed for winter maintenance of cattle. Last year we were able to significantly improve feed procurement. In the republic 620,000 tons of hay were stored. This amount of hay has not been procured for many years. The procurement of other grass feeds also proceeded in an organized manner.

Specific goals for the continued development of farming, indicated at the 18th Congress of the Estonian CP, must be fulfilled systematically each year by all enterprises.

As we know, by the end of the current five-year plan it is planned to procure grass feeds calculated in terms of hay that will surpass the amount produced on the average per year during the past five-year plan by a factor of 0.5, primarily by means of increasing the productivity of crops and the quality of feeds. By the end of the five-year plan the republic's kolkhozes and sovkhozes must produce 50-60 quintals of grass, calculated in terms of hay,

with regularity. The possibility of producing such harvests is confirmed by the experience of many enterprises. For example, for a number of years now over 60 quintals of hay per hectare have been produced by Bambola Kolkhoz of Vil'yandiskiy Rayon, Edazi Kolkhoz of Pyarnuskiy Rayon and Sootaga Sovkhoz of Tartuskiy Rayon. Unfortunately, this is not the case everywhere, and for this reason the main goal of the coming years is to introduce complex measures that will secure a significant improvement in the production of grass feeds.

This is not the first year that we have been discussing the necessity of creating a green conveyor in each enterprise, consisting of pastures with an optimal ratio between early, average and late maturing grasses. At the present time most enterprises have lands with late maturing grasses.

This year in the republic at least 75,000 hectares should be sown in clover, 10,000 in peas and 40,000 in peas mixtures. Rape stands should comprise no fewer than 10,000 hectares. More attention should be given to papilionaceous crops such as galega [Translation unknown].

We must achieve a significant improvement in feed quality. First of all this presupposes feed procurement in the optimal period for each crop and without losses. In order to preserve feed there will be an expansion of the practice of preserving them with the goal of storing all silage and no less than one-third of haylage using preservatives by the end of the five-year plan. The preservation of feed decreases losses of nutritive substances by one-fourth and provides the opportunity to produce an additional 30,000 tons of milk. The biological value of feed and its digestability by animals increase.

The shortage of storage facilities is often the reason for the deterioration of feed. Almost three-fourths of haylage and silage storehouses have been amortized and do not correspond to technological conditions. Enterprises have few ventilated grain storage facilities that meet modern requirements, and existing facilities are not always utilized effectively. This is why in coming years in the republic the most serious attention will be directed at renovating existing and building new storehouses.

Feed such as straw is still being used unsatisfactorily. This is due to the fact that straw is rich in lignin and thus is poorly digested. This is true, but the experience of the Saku Support-Demonstration Sovkhoz, the Kyul'vaya Kolkhoz of Khaapsaluskiy Rayon and other enterprises confirms that in processed form straw is an excellent feed. By chemically treating straw it is possible to increase its feed value and its protein content. Ammonia vapors destroy fungal rot on deteriorating straw and mycotoxins. The grinding, steam treatment and silaging of straw should also not be forgotten; as a result of this assimilability improves.

Pork plays a definite role within the structure of meat production in our republic. In general we know how to raise hogs here. In 1982 an average of 601 feed units and 11.1 man-hours were utilized to produce 1 quintal of pork. The profitability of the branch comprised 37.5 percent. However, this by far is not the limit--in the enterprises of Pyarnuskiy Rayon 526 feed units and 8.4 hours were spent in the production of a quintal of pork; in the Rakhva

Vyyt Kolkhoz of Khar'yuskiy Rayon--457 feed units and 6.2 hours with a profitability of 91.8 percent in hog raising. At the same time there are many enterprises in which hog raising is organized poorly, in which feed expenditures are great and weight gain is low. Thus, in the Laym'yala Kolkhoz of Kingiseppskiy Rayon 910 feed units and 15.62 man-hours were expended in the production of a quintal of pork; in the Teenuze Kolkhoz of Raplaskiy Rayon--1,022 feed units and 13.9 man-hours. In both enterprises this branch operated at a loss.

It is intolerable to sell hogs that are in an unsatisfactory nutritional state. It would be more correct to secure the necessary quantity of feed and to maintain the optimal herd of hogs. In no case should 60-80 kilogram hogs being fattened be sent to combines; hogs must be fattened until they weigh at least 100-106 kilograms. In such a case daily weight gain increases and in addition, hogs in this type of nutritional state require comparatively less protein feed, which is in short supply. We should strengthen the search for possibilities to feed hogs, especially pedigree and feeder hogs, potatoes, root crops, green fodder and silage.

It is common knowledge that there is a greater and greater shortage of animal protein and that it is becoming more and more expensive because a part of it (separated milk, whey, fish) can be used as food products without an increase in their nutritive value in livestock raising. Since 75-90 percent of protein is lost in the production of milk, meat and eggs, in the interest of implementing the Food Program it is undoubtedly proper to utilize these products directly in man's food. However, this circumstance resulted in an increase in the protein deficit in hog raising, which is one of the main reasons for the decreased productivity of hogs. In some enterprises there has even been an increase in the proportion of whole milk in the ration of young animals, which is totally unreasonable because whole milk is an even more valuable food product than skim milk.

In order to cover the need for animal protein we should utilize the wastes of the fish-processing, meat, dairy and food industries better. It is also essential to more actively seek out possibilities for producing feed yeasts (from sulfite lye, peat, hog excrement and so forth). During the coming summer in all enterprises the rations of feeder hogs, especially sows and piglets, must include no less than 5 percent vitaminous grass feed.

It appears that in some kolkhozes and sovkhoses workers have begun to attribute production violations to unfavorable weather conditions with great ease. Either there is too much precipitation or too much sun. The weather does affect the farmer's work, but it is more important to strengthen discipline, to improve the organization of production and to raise responsibility for the unconditional fulfillment of plans and pledged obligations. It was in this way that the problem was formulated at the February 1984 Plenum of the CPSU Central Committee. In his speech at the plenum Comrade K. U. Chernenko emphasized that we must also steadfastly raise the level of party and state leadership of the economy, more actively develop positive tendencies and lend them a stable nature.

A further increase in livestock production depends greatly on the reproduction of the herd. Last year several positive changes occurred here--100 basic sows produced 8 piglets more than in 1982; 100 cows and calves over 2 years of age--2 calves more than in 1982. This has enabled us to somewhat increase the herd of cattle and hogs. The relatively high degree of barrenness of our dairy herd is cause for alarm. Last year 100 cows produced 81 calves, or only one more as compared to 1982. Whereas in most enterprises of Khaapsaluskiy and Vil'yandiskiy rayons the progeny per 100 cows comprised 84-87 calves, in many enterprises of Pylvaskiy, Rakvereskiy, Tartuskiy and Valgaskiy rayons fewer than 80 calves were produced per 100 cows.

Undoubtedly, the reproduction of cattle is affected by violations in the raising of calves. In recent years some things have been done to correct the situation, but nevertheless insufficient attention is still paid to improving the feeding of calves and to elaborating the correct technology for their upkeep. Many large farms have been built, but on the majority of them to this day there are no facilities for calving and for the upkeep of calves. Because of the shortage of modern farms for calves over 60 percent of the herd is housed in old, adapted facilities. It is essential to decisively improve the upkeep of calves because in the coming years this will significantly affect our fulfillment of obligations related to the production of beef and milk.

It has been known for a long time that a low-productivity cow will not produce high-quality progeny. In coming years we must increase the milk yield of cows to 3,900-4,000 kilograms per year. To do this we must organize the fattening of calves such that by the time of insemination, i.e. at the age of 16-17 months, they weigh not 280-300 kilograms as they do now, but at least 340-350 kilograms. In addition to improving the fattening of animals it is essential to purposefully continue pedigree work in order to increase the pedigree potential of cows and hogs even more.

Parallel with the raising of beef-dairy cattle of the Estonian Red and Black-Variegated breeds, in the republic more and more attention is being given to the breeding of beef cattle, primarily of the Hereford breed. This cattle, which is undemanding with regard to feed, can be successfully maintained on low-productivity natural meadows.

In coming years there will be increased attention focused on the development of sheep raising. We have a sufficient number of natural and improved meadows which are appropriate for pasturing sheep. However, the work of the sheep-raising association in the Puka Sovkhoz, which is subordinate to the Estonian SSR Agroprom [Agricultural industry association], still does not correspond to requirement. There has been a slight increase in the number of sheep on private plots. But, unfortunately, corresponding work among the population here is poorly managed. Here the aforementioned sheep-raising association must have its word.

The production of agricultural products in a particular region or enterprise depends directly on the level of management, including by the party. This becomes particularly evident in work with lagging enterprises. An evident example of how it is possible to increase the production and sale to the state

of meat and milk during a short period of time is the activity of the Pyarnuskiy Rayon party committee. In recent years in the rayon special concern has been demonstrated for increasing the production of animal products in weak kolkhozes and sovkhozes. First and foremost a course has been taken here to intensify the production of milk; moreover, the main thrust has been in the direction of strengthening the feed base. There has been a significant movement of organic fertilizer into the fields, and acreage in feed crops has been brought into line with the needs of livestock raising. The party raykom has focused a great deal of attention on the selection and distribution of cadres in lagging enterprises. As a result of all these measures Pyarnuskiy Rayon has moved up to the level of the best livestock raising rayons in the republic. For example, whereas 3-4 years ago it occupied eighth to ninth place in the republic in milk yield per cow, last year the average milk yield per cow reached 3,879 kilograms. In this indicator the rayon occupied third place in the republic, surpassing such well-known livestock raising rayons as Vil'yandiskiy and Yygevaskiy.

In order to fulfill the program of increasing the production of livestock products a great deal also remains to be done in transforming the social aspect of the village. In recent years there has been more building in the village, especially of houses of the farmhouse type. But this is not enough. In addition to building housing we must create the entire infrastructure and normal conditions for work and leisure, for educating children and for trade and personal services. Party organizations cannot remain in the background with regard to dealing with these questions. After all, concern for man and improvements in his work and living conditions are their direct responsibility.

At the December 1983 Plenum of the CPSU Central Committee it was noted that "for the first time in recent years there has been a noticeable change in the important branch of livestock raising. There has been an increase in the procurement of milk, meat and eggs. The feed base has become stronger. This enables us to count on further positive changes next year as well."

In order to secure this tendency it is essential that communists and workers of the agroindustrial complex multiply their efforts to fulfill the Food Program, to increase the return on fields and the productivity of livestock and to effectively utilize resources directed by the party and government into the development of agriculture.

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## LIVESTOCK

### REDUCING PRODUCTION COSTS IN MEAT, DAIRY INDUSTRY

Moscow MOLOCHNAYA PROMYSHLENNOST' in Russian No 5, May 84 pp 1-4

[V.D. Filippov, deputy chief of the Ministry of Meat and Dairy Industry's Economic Planning Directorate: "Cost As The Basic Indicator Of Production Efficiency"]

[Text] The decisions of the 26th CPSU Congress and subsequent CPSU Central Committee Plenums have dictated that there is no way to successfully solve the variety of economic and social missions that the country has other than a rapid growth in labor productivity and a sharp increase in production efficiency. The most important component of an economic strategy is stressing efficiency.

One of the basis indicators of economic production efficiency is product cost. Product cost is defined as the amount expended on its production and sale and it reflects the value of raw materials used, the basic and auxiliary materials, fuel, energy, amortized deductions, cost of labor wages including social insurance deductions and also enterprise expenses connected with product storage and sales.

Lowering the cost of manufactured goods is the primary method for increasing profit since the latter represents the difference between the wholesale price for the finished product and its cost.

In 1983 enterprises and amalgamates in the dairy industry successfully met their cost reduction plan. The savings over and above that planned from production cost reduction throughout the whole industry was 19.7 million rubles and this was distributed as follows (in rubles): RSFSR--8.4 million; Ukrainian SSR--1.7 million; Belorussian SSR--2 million; Uzbek SSR--660,000; Georgian SSR--600,000; Azerbaijan SSR--110,000; Lithuanian SSR--1.5 million; Moldavian SSR--400,000; Latvian SSR--600,000; Kirghiz SSR--370,000; Armenian SSR--570,000; Estonian SSR--2,020,000; the Union industry 2,040,000; from latter 1.7 million for Soyuzkonservmoloko [All-Union Association of Dairy Packing Industry and Children's Nutrition Products].

At the same time dairy industry enterprises and associations in the Kazakh, Tajik and Turkmen SSR's not only did not meet their plan for lowering expenses, they also allowed a price increase. This shows the serious lapses in the program to increase conservation of raw materials, labor, fuel-energy and other



material resources and the lack of responsibility by leaders of enterprises and associations in fulfilling the plan and maintaining state, technological and labor discipline.

With the general over-fulfillment of the cost reduction plan as a result of altering the planned assortment of manufactured dairy products, the total savings from reduced production expenses was decreased by 14.5 million rubles. The breakdown by republic dairy industry is as follows (in rubles): RSFSR--almost 10 million; Ukrainian SSR--1.8 million; Belorussian SSR--500,000; Georgian SSR--260,000; Lithuanian SSR--110,000; Moldavian SSR--450,000; Latvian SSR--280,000; Estonian SSR--80,000 and the Union industry--almost 210,000 rubles.

The 1984 plan for economic and social development in the meat and dairy industry envisioned reducing the cost of dairy products by .3 percent of the 1983 level. The plan to lower production cost in the dairy industry stipulated the following measures: a more complete and more rational use of milk and the products derived during its processing (skim milk, buttermilk and whey); reduction in milk delivery costs; economic diversification in secondary materials, packaging and fuel-energy resources; a relative reduction in salary costs, production management, organization and servicing and also elimination of non-productive expenses and losses.

In accordance with the decisions of the December 1983 CPSU Central Committee Plenum and the conclusions and recommendations in speeches by CPSU Central Committee General Secretary Comrade K.U. Chernenko at the February 1984 Plenum, the industry extensively used socialist competition to reach a 1 percent labor productivity increase over and above the 1984 plan and a supplemental commodity cost reduction of .5 percent. Fulfilling the adopted commitment will allow them to produce an additional R148 million rubles of dairy products and realize a R62 million savings in state materials.

Along with the widely developed organizational work in mobilizing enterprise and association collectives to resolve these tasks, they are developing plans for comprehensive production maintenance. They are also determining additional measures for using raw materials more thoroughly, increasing product output and lowering the outlay of other material expenses for production, improving skim milk, buttermilk and whey use, sharply dropping production of low-profit and non-profit goods, economizing on transportation expenses, eliminating various types of non-productive expenses and losses and other measures.

Workers in the industry should put special attention on issues related to economizing of raw materials, other materials, fuel-energy and labor resources so as to successfully meet both the plan and the socialist commitments to lower production expenses.

The main source for reducing dairy product cost is increased efficiency of raw material use. When raw material cost drops by 1 percent throughout the industry, it gets an annual savings of approximately R100 million.

Reducing raw material expenses requires maintaining a strict economy regime at all stages beginning with the milk procurement, delivery and processing and ending with the sale of the final product.

Reducing milk raw material procurement expenses can be attained by increasing the fleet of specialized large-load vehicles, improving roads and developing direct links between suppliers and enterprises. Direct links from the kolkhoz and sovkhoz to the processing enterprise not only reduces procurement expenses and milk losses but also reinforces the parties responsibility for uniform delivery and timely, qualitative raw material processing without losses.

Reducing the outlay on raw and other materials during the production of goods is attained by improving the production structure through curtailing production of goods at a loss or with little profit and by using fruit and berry, vitamin and other fillers.

An important reserve for increasing the effectiveness of raw material and component part use is maximizing the industrial processing of skim milk, buttermilk and whey.

A significant fluctuation in output per ton of processed raw material shows the necessity of rationally selecting the type of product to be manufactured.

Thus in the production of all types of animal fats, the output of products at the optimum cost per ton of processed milk for the industry average is 148 rubles, including sweet creamery butter at 134 rubles, peasant butter at 149 rubles and sandwich butter at 160 rubles. Production of whole milk is 269 rubles, cultured milk is 317 rubles, cottage cheese with 9 percent fat is 226 rubles, and canned dairy products is 518 rubles. The outstripping tempo in the growth of pasteurized milk production, cultured milk beverages, sour cream, cottage cheese with a lowered fat content, cultured milk and other products with fruit and other fillers allows a significant raw material savings.

We can increase product output from the initial raw materials by using progressive technology and the correct mixture of raw and basic materials (for example, in the production of cheeses, canned dairy products, processed cheeses, ice cream and others) and also by curtailing product spoilage and delivery of the product to the marketing network under conditions that deviate from standards and technical conditions.

Recently the industry's scientific-research organizations have developed a significant number of new, improved dairy products that have increased profitability. This includes condensed milk with sugar and 5 percent fat, 15 percent fat domestic powdered milk, Emmenthal and Tourist cheeses, Studencheskaya sour cream with 10 percent fat, 1 percent fat baked milk, 1.5 percent fat pasteurized milk, ice cream with a milk base and vegetable additives and milk whey concentrates. Development and expansion of production will allow the outlay on their production to be significantly reduced and will increase raw material use efficiency.

Many dairy industry enterprises lose milk while pouring it into paper tetrahedron-shaped packages, during transit and right in the marketing network. To reduce these losses we must increase both the qualifications and responsibilities of workers, reduce the number of container moves, organize shipment of milk into packets only on trays and increase control over the quality of paper received and the operation of packaging machines.

The improved use of auxiliary material, a 1 percent reduction of which in the industry would reduce costs and increase profits by 5 million rubles, is a source of production cost reduction. We must improve storage, use progressive and cheaper packing and packaging material (carton and plastic packaging instead of wood and plywood, plastic baskets instead of metal boxes and polymer material for pouring liquid and pasty dairy products into one-time use packages).

With the increased technical level of enterprises and the development of power-consuming production such as in enterprises that make dry milk products for children and dry skim milk, whole milk substitutes and others, the significance of fuel-energy expenses as a source for reducing costs is growing. At the present time these expenses in the dairy industry run about 360 million rubles, or almost 3 percent of the total cost, but more than 15 percent of the processing cost.

It is worth noting that the demand for electro-energy, steam, refrigeration, water and compressed air will increase in the future as enterprises in the dairy industry acquire equipment and the production structure is improved. In this regard we must continually work toward reducing energy output per unit of product and toward lowering the cost per unit of each energy type.

We can get power resource savings in fuel by replacing old boilers with modern ones, installing water economizers and air heater plants, increasing condensation return in boiler rooms, using various methods for preparing feeder water, washing and cleaning scum from boilers in a timely fashion, reducing losses through low physical and chemical firing of fuels and others.

Thermal energy savings can be brought about by using secondary energy sources, insulating steam pipes and heat equipment according to technical requirements, replacing steam heat systems with hot water systems, by dry cleaning industrial premises and other measures. Electrical energy conservation is possible by using natural cold in winter, automating cooler work, using various compensating means to support power coefficients, automating the work of cleaning buildings and water supply systems, insulating rooms in the technically correct way, increasing control over switching lights on and off in a timely manner in all industrial buildings, establishing photoelectric relays, putting in luminescent lighting and others.

One of the ways to save energy resources is by doing planned preventive repairs on energy and technical equipment in time and by organizing records and control in areas that need them.

The most important source for reducing the cost of dairy products is a relative reduction in salary costs.

Salary costs including social insurance deductions are 6.9 percent of the total production cost, but 36.3 percent of the processing cost. A precondition for reducing salary costs is a systematic increase in labor productivity and an economically correct correlation between average salary growth and productivity growth.

Increase of labor productivity must be done through introduction of new equipment and progressive technology, scientific labor organization, introduction of the contract brigade organizational concept and providing incentives for it, improvement of production management and thus lower the number of administrative personnel, eliminate work-time losses and reduce cadre turnover.

The new type brigades must extensively use cost accounting methods which essentially provide an increase in production with the least outlay of material, labor and financial resources.

Studying and disseminating the latest labor methods and introducing efficiency recommendations and inventions into the industry are some of the most important ways for increasing labor productivity and lowering salary expenses.

Reducing product cost must also be attained by reducing the expenditure on management, organization and production servicing by reducing the outlay on maintaining the hierarchy for managing the enterprises and amalgamates, on postal and telephone costs, business trips, office and other general economic necessities, by eliminating non-productive expenses resulting from the wasteful and irresponsible attitudes of individual workers toward meeting their service responsibilities (losses from spoilage, product damage, penalties, fines and others). These things must have no place in enterprises.

Successfully completing the established plan and the social commitments to lower the cost by more than the plan calls for requires clear-cut work at all levels of management. Meeting the industry's missions is not only the responsibility but also the patriotic duty of every worker in the dairy industry.

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## REGIONAL DEVELOPMENT

### MINISTER SURVEYS AGRICULTURAL ACHIEVEMENTS, PROBLEMS, GOALS

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 4, Apr 84 pp 10-19

[Article by M. Khorunzhiy, Ukrainian SSR minister of agriculture: "Tasks and Problems of the Agrarian Sector of the Economy with Respect to Increasing Volume of Production and Raising Production Quality"]

[Text] Among the measures for raising the living standard of the Soviet people drawn up by the 26th CPSU Congress, a central place is given to the dynamic and proportional development of all components of the agroindustrial complex, improvement of the economic mechanism as well as raising the efficiency of public production on the basis of its systematic intensification and acceleration of scientific-technical progress. It was pointed out at the December (1983) Plenum of the CPSU Central Committee that as before greater attention is required for the realization of the USSR Food Program requires greater attention. Among the many problems that are being solved, growth of food resources is of primary importance.

The republic's food program, which was approved by the November (1982) Plenum of the Central Committee of the Communist Party of the Ukraine, envisaged an increase (of 30 percent) in production of agricultural output per hectare of land over a 10-year period and a (1.5-fold) growth of labor productivity in the sector. It defined the concrete tasks for the production of basic types of agricultural output.

These tasks are not simple but feasible if one takes into consideration the increased production and technical potential of the sector. In recent years, the level of mechanization of operations in crop growing and animal husbandry has become perceptibly higher and widespread use is being enjoyed by our zonal systems of agriculture, highly productive varieties and hybrids and industrial technologies of production of sugar beet, corn, sunflower, beef and products of poultry growing as well as progressive forms of organization and pay of agricultural labor. Favorable changes have occurred in providing kolkhozes and sovkhoses with personnel and in improving the social and living conditions of the rural population.

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1. The article was prepared on the basis of a talk given at the Republic Scientific-Practical Conference in Vinnitsa in December 1983.

In 1983, fulfilling the decisions of the May and November (1982) Plenums of the CPSU Central Committee, party, soviet and agricultural organs in the localities mobilized rural workers and all personnel of the agroindustrial complex for more organized, high-quality carrying out of agricultural work and for raising production efficiency in the sector, which has significantly reduced the negative effect of unfavorable weather conditions.

The grain growers of Kharkov, Sumy, Kiev, Lvov, Volyn, Rovno, Ivano-Frankovsk, Chernovitsy, Ternopol and Transcarpathian oblasts fulfilled state plans for sale of grain. Kolkhozes and sovkhozes of Cherkassy, Vinnitsa, Transcarpathian and Chernovitsy oblasts obtained 29-37 quintals of grain from each hectare of their sowings. Kolkhozes imeni Engels of Karlovskiy Rayon in Poltava Oblast, Leninskiy Shlyakh of Ivanichevskiy Rayon in Volyn Oblast, Pershotravneviy of Dubnovskiy Rayon in Rovno Oblast and Progress of Bershadskiy Rayon of Vinnitsa Oblast took in 55-59 quintals of winter wheat per hectare.

Farms of Vinnitsa, Cherkassy, Kiev, Ternopol, Lvov, Ivano-Frankovsk and Chernovitsy oblasts provided a yield of sugar beet of 300 and more quintals per hectare. On the whole, in the republic potato production increased and plans were fulfilled for its sale to the state. A good harvest of this agricultural crop was grown by Chernovitsy, Chernigov and Volyn oblasts.

The fodder base of the republic's public animal-husbandry is becoming stronger. Planned growth of the number of livestock and poultry is assured. The 1983 targets for production and procurement of meat, milk and eggs were fulfilled. In this connection, the state purchased 5 percent more meat than in 1982, 11 percent more milk and 4 percent more eggs. The initiators and victors of the All-Union Socialist competition--workers of animal-husbandry farms of Cherkassy Oblast as well as of Dnepropetrovsk, Donetsk, Ivano-Frankovsk, Crimean, Nikolayev, Zhitomir, Kiev and Kherson oblasts--are confidently increasing the production output of animal-husbandry products.

But on the whole the work results of the agriculture of Ukrainian SSR in the last 3 years do not completely meet the set tasks. At a number of kolkhozes and sovkhozes, measures for more effective use of land, fertilizers and equipment as well as production capacities, labor and financial resources are not being adequately carried out. Plans are not being fulfilled for the production of basic types of agricultural products and for raising labor productivity in the sector. Comprehensive mechanization of production processes in basic agricultural sectors is proceeding slowly. Despite a number of measures adopted by the Communist Party and the Soviet government for strengthening the economic and financial position of kolkhozes and sovkhozes as well as for raising purchase prices for agricultural products, some sectors of agricultural production still continue to show low profitability.

There is no doubt that the results of economic activity are influenced by weather conditions, but the main reason for the unstability of agricultural production is to be found in technological, organizational and economic lapses and inadequate flexibility (for the purpose of constantly and effectively compensating for the climatic conditions).

A basic question of ensuring stability of agricultural production, increasing the production volume of agriculture and raising its quality is rational use of land and concern for increasing its fertility. This is particularly important owing to a certain curtailment of land resources. Together with realization of measures for reducing withdrawal of land, it is necessary to conduct work more determinedly for expanding the area of agricultural land through drainage of marshes, reclamation of sands, stoney places, solonchaks and solonchaks, clearing gullies of weeds, recultivation of disturbed areas and replacement of a network of land-improvement systems with a covered one. Calculations show that through the means of these resources, it would be possible to bring up to 900,000 hectares of land into agricultural turnover.

Attaching exceptional importance to questions of preservation and increase of land fertility, the UkSSR Ministry of Agriculture together with the Southern Department of the All-Union Academy of Agricultural Sciences and the UkSSR Academy of Sciences undertook the development of a republic goal-oriented complex scientific-technical program "Land Resources." It includes a complex of measures for preserving the republic's agricultural land fund, for protecting soils and increasing soil fertility on the basis of practical utilization of zonal and oblast systems of agriculture in which a leading place belongs to increased application of organic and more effective utilization of mineral fertilizers. At the same time, an extremely important task is implementation of measures for assuring the preservation of humus.

In increasing soil fertility, a significant role is played by organic fertilizers whose share in the total balance of nutritive substances is in excess of 40 percent. The application of organic fertilizers in the republic by means of scientifically based oblast systems is planned to reach by 1985 in the steppe zone 8-10 tons per hectare of plowland, in the forest-steppe--10-12 tons and in woodlands--15-20 tons.

The combined use of mineral and organic fertilizers is especially effective, although this resource is used far from adequately. In this connection, many problems have to be solved of utilization of manure and effluences of animal-husbandry complexes and specialized farms as well as effective use of peat, silt and sapropels.

In the present decade, the USSR Food Program is to have a higher yield because of mineral fertilizers and other chemical agents used in agriculture. At the present time, actual repayment of fertilizers does not exceed 60-70 percent of the norm. An important way of solving this problem is liming and application of gypsum, the rate of which should be in advance of the use of mineral fertilizers.

A qualitatively new approach is to be used in the organization of agrochemical servicing of kolkhozes and sovkhoses in Ukrainian SSR. Today an acute need has arisen in the republic for working out recommendations for regulating conditions of feeding plants with nitrogen according to the periods of their vegetation as well as for the calculation of doses for application of fertilizers according to the content in them not only of nitrogen, phosphorus and potassium but also of microelements--sulfur, magnesium and others. In this connection, planning and research organizations of Selkhozkhimiya have to perform a complex of pertinent work of an organizational and technological order and

to exercise state control over the use of fertilizers. On the whole, this will provide a transition to a qualitatively new level in the use of chemicals in agriculture; which now is on the way to programming of harvests of agricultural crops and systemic application of fertilizers in crop rotations for each crop while taking into account its varietal special features. The work experience of Pervomayskiy Rayon Selkhozkhimiya in Kharkov Oblast, approved by the CPSU Central Committee, attests to the great possibilities inherent in increasing the effectiveness of chemical use in agriculture.

It is also important to concentrate more attention on achieving a balanced character in land improvement and in its subsequent utilization for the purpose of having all agricultural crops reach their projected yield. For this end, improved land is secured everywhere with permanent brigades and links whose work is organized in accordance with the method of the collective contract.

A key problem facing our republic's agriculture, the urgent solution of which we are directed to by the USSR Food Program, is increasing grain production. The problem here is to ensure in the immediate years ahead satisfaction of the growing needs of the country for high-quality food and forage grain, while the principal way of solving it lies in a universal boosting of the yield of grain crops for the UkSSR and having it reach 32-33 quintals per hectare by 1990.

During the current five-year plan, the grain problem in our republic continues to be difficult. The chief reason for the inadequate productivity and stability of the grain industry in the Ukrainian SSR is underestimation of development and utilization of scientifically based systems of agriculture, especially their most important element--crop rotations. According to inventory data, they are conducted with violations at a number of kolkhozes and sovkhoses, which in turn brings on a reduction in reserves of moisture and their phytosanitary role and accumulation in the soils of weeds, causative agents of diseases and pests. The importance of weedfree fallow is still underestimated as one of the basic elements making it possible to stabilize productivity of plowland and to ensure raising the quality of wheat grain.

At the present time, measures are being implemented everywhere in our republic for imposing needed order in these questions. Crop rotations are being reconstructed or improved. This provides the possibility to establish by the end of the current five-year plan crop rotations on 90 percent of their area and by 1990 to practically complete this work. Before the end of the present five-year plan, it is planned to locate winter crops according to the best predecessors and also to expand the area of clean fallow to optimal size. Soil areas cultivated for grain crops by means of moldboardless and surface methods will be increased 1.5-fold in the Ukrainian SSR.

Together with concern for raising the yield of grain crops, we face a lot of work in bringing the structure of grain production of the republic in accord with the requirements of the national economy for specific varieties of grain. Such structural changes naturally will require making more precise the placement of individual grain crops in existing habitats and bring the sizes of their sown areas in accord with the crop-rotation system and the specialization of specific farms.



An exclusive role in adding to the forage resources of Ukrainian SSR and upgrading of their quality has been given to corn. Consequently, in areas of guaranteed harvests of this crop, it is planned to increase almost twofold its gross yield as early as this year.

We also expect to significantly expand gross yields of rye in the woodland regions of the republic because it is a more stable and productive grain crop in this area as well as that of fodder and beer-brewing varieties of barley, legumes (especially--soybeans) and cereal (buckwheat, millet and rice) crops.

One of the most important ways of obtaining big and stable harvests of grain crops, as well as of increasing the stability of agricultural production as a whole, is seed growing. We all know that a highly intensive variety and good seeds are the basis of yield and with proper varietal agrotechnology this is a most effective and least capital-intensive means of boosting the yield of agricultural crops.

At the present time, measures are being implemented in Ukrainian SSR on improving the operation of elite and seed-growing farms and strengthening their material and technical base and also on putting seed growing on an industrial basis. Everything is being done to see to it that even in the current five-year plan a seed-processing plant will be in operation in every region of our republic. But in the process of carrying out this program, a number of weak elements have revealed themselves in the republic's seed growing. In this connection, work is now going on on concentrating elite seed growing on a fewer number of farms and departments of the republic, and a network of seed-growing farms is being verified for the purpose of having them completely provide all kolkhozes and sovkhozes in the Ukraine with seed for seed plots. This will make it possible to reduce the number of seed-growing farms and to significantly reduce transport outlays on seed hauling.

One of the difficulties today is plant protection. In recent years, the grain ground beetle, mouse-type rodents, grass flies and others have become widespread. Mass use of pesticides has resulted in undesirable ecological consequences--many varieties of pests have developed an immunity to them. Wide-scale use of chemical agents frequently results in the destruction of useful insects on sowings. For this reason it will be necessary for the long term to aim at wide-scale use of biological methods and complex systems of integrated plant protection.

The range of problems connected with development of grain production in the Ukrainian SSR is not exhausted by the depicted question. The problem now is to conduct work on ensuring the stability of this sector in the complex without losing sight of even one of its components.

A special responsibility has been placed on our republic for sugar production. In the Ukraine, there has been developed and is being carried out a goal-oriented complex scientific-technical program called "Sugar", which provides for increasing sugar production 1.7-fold by 1990 (over 1980). The scale and seriousness of the tasks facing the republic's beet growers can be seen from the fact that in the past 3 years, the average beet yield in the Ukrainian SSR

has risen slowly. The chief reason for such a state of affairs is first of all poor utilization of industrial technologies for cultivating sugar beet. The fact is that the experience of the people of Vinnitsa and particularly of Yampol beet growers shows that big real possibilities for the successful solution of this problem and unutilized reserves exist on each farm.

A tense situation is coming into being in Ukrainian SSR in regard to production and improvement of the quality of sunflower seeds. In the 3 years of the 11th Five-Year Plan, the republic's farms have underprovided the state with a significant quantity of this item. This is to be explained not only by the unfavorable weather conditions of recent years but primarily by a lag in the development of selection work for the development of highly productive varieties and hybrids of this crop that are resistant to dangerous diseases and pests as well as weak introduction and violations of industrial cultivation technology. Over the long term, sunflower area in the Ukraine will be reduced. Consequently, achievement of planned volume of its production is basically planned through raising the yield of this crop, reducing losses of the grown crop in harvesting and storage, growth of sunflower oil content and also improved technology of production and processing of the oil seeds.

One of the most important food products which the people rightly call the "second bread" is potatoes. Basic problems in this field continue to be rise of yield and improvement of the quality of the cropped potatoes. Therefore it is first necessary to solve the problem of waging a more effective struggle against weeds, pests and diseases. According to data of the Ukrainian Scientific-Research Institute of the Potatoe Industry, a large biomass of weeds is accumulated by the end of vegetation of this crop, which reduces the potato yield. The seed growing of this sector calls for further improvement. All this imposes many problems on the personnel of scientific-research institutions and on production people. The joint task both of agricultural specialists and of the scientists of the republic is to answer them with concrete deeds.

Special attention is paid in the USSR Food Program to further improving the production output of animal husbandry. During the present five-year plan, it is necessary to ensure an average annual production of meat in the Ukrainian SSR (in dressed weight) at a level of 3.9 million tons and in the 12th Five-Year Plan--4.6-4.7 million tons, of milk, respectively, 22.8 and 24.0-24.4 million tons and of eggs--14.8 billion each and 16.1 billion each. It should be emphasized that the entire growth of animal-husbandry output has to be secured through intensification of this sector. At the present stage, animal-husbandry intensification is developing along three basic lines: accelerated forming of herds of animals suitable for use under conditions of employment of industrial technologies based on intensiveness of their reproduction; raising the level and soundness of feeding animals and poultry; improvement of production specialization and introduction of progressive industrial technologies of output of animal-husbandry production.

A barometer of the general state of animal husbandry in our republic is dairy stockraising because of its great complexity and multitude of factors. It would be impossible to solve the problems of its development without well-organized herd reproduction. Its most important elements include production

of healthy offspring, organization of growth of repair young stock and establishment of rational tempi of yearly renewal of female herd through the introduction of primapura heifers. For the purpose of ensuring a stable rise of herd milk productivity (within the limits of 3-4 percent a year) for the bulk of the republic's farms it will be necessary to produce 90 calves for each 100 cows and to introduce into the herd no less than 26-30 primapura heifers. This means that for all practical purposes all the heifers have to be grown intensively and single-mindedly. As a minimum 28-29 months will produce offspring and only after a careful appraisal as to productivity and suitability for further use should they proceed to make the basic herd younger.

The importance of correct rearing of repair heifers is shown by an analysis of the operation of breeding farms and breeding sovkhoses in the Ukrainian SSR. There where the average daily weight increase of these heifers has been at a level of 300-400 grams, their productivity for the first lactation did not exceed 2,500 kg of milk. At the same time, on farms where the average daily weight gain of heifers amounted to 550-600 grams, their productivity amounted to 3,500-4,000 kg.

As for the developmental prospects of our republic's dairy stockraising, it is proposed to significantly increase the number of black-speckled [chernopestryy] stock and to create through the use of imported dairy breeds a type of Simmenthal and red-steppe cattle. The solution of these problems directly depends on the intensiveness of selection and use of bulls-improvers [byki-uluchshateli]. Through the fuller utilization of the capacities of the 17 cattle-breeding installations in the Ukraine, in 1985, 80 percent of the breeding contingent will be inseminated with the semen of bulls-improvers. A basic element in the system of breeding work are breeding enterprises, selection centers and breeding farms which are assigned a primary role in the forming of a highly productive herd. They foundations are created in them for further improvement of cattle breeds. At the present time, we are setting the task for pedigree breeding farms to strictly specialize, and their chief product should be pedigree animals. At the same time, special attention should be paid to providing the cattle with high-quality fodders.

Taking into consideration the existing fodder structure, the most realistic reserves and possibilities in the matter of increasing production of meat on kolkhozes and sovkhoses of our republic should lie in further increasing the production of beef. By 1990, its relative share in the total balance of meat production will amount to 48 percent, while its production volume will have increased by almost 40 percent. The chief route for achieving the stated indicators lies in maximum utilization of the genetic possibilities of cattle and on this basis on increasing the daily average weight gains, reducing the period of their rearing and fattening and also in increasing the delivery weight conditions of the animals.

It should be emphasized in this connection that a great deal depends not only on the level of availability of feeds but also on a precise system and organization of their rearing and fattening. This position can be confirmed by the following comparison. During the course of the last wintering, feed was available for each standard head of cattle on the farms of Cherkassy, Kharkov and Ternopol oblasts at practically the same level, but in this

connection, the average daily weight gains of the animals in fattening differed: in Cherkassy Oblast--at a level of 625 grams, in Kharkov Oblast--262 grams less and in Ternopol Oblast--237 grams less. The success of the farms of Cherkassy Oblast was ensured as the result of precise 3-link organization of beef production; rearing of the animals to 20 days on dairy farms, rearing them further on special farms and a concluding intensive oil-seed or sugar-beet residue fattening at interfarm enterprises. In 1983, they fattened tens of thousands head of cattle, or half of its fattening head. At the same time the average live weight of one head was 396 kg and its average daily increase--585 g.

In some oblasts of Ukrainian SSR, good cattle weight increases are achieved (in Poltava Oblast, something like 585 grams), but since less than 13 percent of own head are being fattened, difficulties arise with respect to plan fulfillment. Consequently it is necessary to ensure everywhere placement on intensive rearing and fattening of no less than 25 percent of the total number of cattle.

Pig breeding is a traditional sector of public animal husbandry for our republic's farms. Its present condition is still characterized by high outlays of labor and resources for the production of a unit of output, which is due to the low productivity of animals being fattened and low intensiveness of use of female pig stock. For each basic sow, less than one tone of pork is produced. The greatest difficulty in the sector is growing of piglets up to 4 months of age. Such a state of affairs is caused by an inadequate level of general and energetic [energeticheskoye] feeding as well as by violations of technological conditions of maintenance of animals.

By 1990, it is planned to increase pork production 1.5-fold in the Ukrainian SSR with 80 percent of it being produced on an industrial basis on specialized farms and complexes. These indicators will be reached through the means of the following factors:

--employment of the achievements of genetics and selection for the purpose of improving existing and development of new breeds of pigs (in particular, work will be expanded on the reproduction of the new Poltava and Kharkov bacon types of pigs);

--wide-scale introduction of industrial cross-breeding and hybridization of the animals (through this there will be produced each year more than half of crossbred and hybrid young pig stock);

--organization of highly efficient operation of pedigree and commercial reproducers of pigs on the basis of more intensive utilization of female pig stock and boars-improvers;

--total transition to biologically sound feeding of pigs of different age and production groups (for this end, the production of starter mixed feeds will be brought up to 20 kg in a year per head up to 2 months of age and up to 80 kg correspondingly for those 2 to 4 months of age).

The intensification of agriculture in the Ukraine creates favorable conditions here for the development of sheep breeding. This sector of animal husbandry, however, continues to retain an extensive character, which to a significant degree is to be explained by inadequate attention paid to it and by a low level of scientific developments on the technology and organization of production of mutton and wool. The solution of these questions brooks of no delay.

It is planned to develop at a fast rate in the Ukraine poultry raising, particularly meat poultry raising. By the end of the 12th Five-Year Plan, the production of poultry meat in the republic will have increased 1.5-fold. For the purpose of securing planned growth of production output for this sector, the periods of construction of new and modernization of existing poultry factories will be shortened for the production of eggs, growing of broilers, ducks, geese and turkeys.

The achievements of science and advanced practice will be widely applied in our republic's animal husbandry and in the solution of pressing problems of its further development. A basic direction of breeding work in this sphere of agriculture will be development of methods of boosting the heterosis effect through the establishment of synthetic lines on the basis of heterogenic populations and polycrosses. At the same time, a special role is assigned to science in developing methods of selection for improving already existing lines of animals up to the level of world standards as well as developing new, highly productive lines of animals for the purpose of creating their perspective crosses distinguished by high vital capacity, fertility and early growth.

In speaking of the problems of further development of animal husbandry in the Ukrainian SSR, it is impossible not to speak of the necessity of the strictest observance on each animal-husbandry farm of veterinary-sanitary requirements for the care, maintenance and feeding of animals (and especially technological parameters provided for their microclimate) as well as the carrying out of preventive measures.

It is necessary to speak once more of the fact that the chief determining factor of highly efficient development of public animal husbandry is the creation for it of a solid and stable fodder base. In recent years, certain work has been done in our republic on increasing the production rate of fodder and transforming fodder production into a modern, specialized sector of agriculture. Through the expansion of sowings of perennial grasses and legume multi-component mixtures, the structure of fodder crops has been improved, the organization of seed growing bettered and the sowing areas of fodder crops on irrigated land expanded. Progressive technologies of fodder procurement have also become widely disseminated. But these, of course, are only the first steps on the way to the establishment of the sector of fodder production. At the present time, the kolkhozes and sovkhoses of the Ukraine are experiencing as before a feed shortage, particularly in protein. This is caused to a considerable degree by inadequate availability to the republic's farms of high-yield varieties of grain crops (with an increased lysine content, fodder beet (with a high content of dry substances), legume and cereal perennial grasses (with high seed productivity). In addition, an acute shortage is felt of high-efficiency fodder harvesting equipment. Cases occur of violation of the technology of procurement and storage of produced fodder.

During the decade, fodder production on all categories of farms in the Ukrainian SSR is planned to be increased 1.3-1.3-fold and the production of fodder protein by 12-13 percent. In this connection, fodder production growth will come from intensification of field fodder production and bringing the productivity of each hectare to an average of 40 quintals of fodder units. An important role in the solution of the protein problem is being given today to industrial production of fodder. Production volume of meat and bone flour will be increased by 37 percent and that of fodder yeast correspondingly two-fold.

Work should be continued everywhere on conferring a specialized, sectorial character on fodder production. The task has been set to create on each farm of our republic a production subunit working on the collective contract for the production, procurement and processing of fodder as well as preparing it for feeding.

The complexity and scale of the tasks set in the USSR Food Program make essentially new demands on the system of operation and the economic mechanism of management. The concept of the agroindustrial complex advanced by the 26th CPSU Congress reached its organizational completion in the creation of agroindustrial associations and the new organs of operation--councils and working apparatuses of the rayon agroindustrial association and the oblast agroindustrial association. As a result, the responsibility of organizations serving agriculture for their observance of contractual obligations and for the quality of the work they perform and the services they provide has been somewhat increasing. Fund discipline was strengthened, and effective control was imposed over mutual settlements and quality of production. With the formation of agroindustrial associations, the role of oblast and rayon agricultural administrations was enhanced.

But in the operation of agroindustrial associations of the republic, sluggishness and timidity are still to be found in the use of the rights and possibilities granted them. Petty concerns prevail in the style of their work in regard to management of farms, and economic means and sanctions are used inadequately. At meetings of RAPO [rayon agroindustrial association] councils, minor, secondary questions are frequently heard. Work is dragging with respect to the creation of centralized funds and revision of rates and prices and with respect to the establishment of targets for volume of work and services on the basis of far, requisitions addressed to service organizations as well as in regard to transition to the new conditions of settlement with them for performed work. All the indicated defects in the operation of agroindustrial associations occur primarily because narrow departmentalism is still to be found in the localities. Moreover, the force of inertia continues to operate in waiting for additional instructions and explanations from above.

Today there should be in the forefront questions of radical improvement of economic work in the countryside. But effectiveness of use of additional resources continues to be inadequate. For this reason, the role should be constantly increased of cost-accounting relationships between the partners for production, the drive for a regime of economy and progressive forms of organization and motivation of agricultural labor, including the collective contract in particular.

As Politburo member of the CPSU Central Committee and secretary of the Central Committee M.S. Gorbachev pointed out, cost accounting is the spring in the entire complex of measures for accomplishing the food program and the brigade contract is its basic organizational form. There must be established in it a strict regime of economy and wide-scale participation of labor collectives in the solution of all questions. The fact is that conferences, "explanations" do not give anything. Here you need painstaking work with people.

At the present time, more than 10,000 brigades and mechanized links work on the kolkhozes and sovkhozes of the republic utilizing the method of the brigade contract. There are more than 7,000 of them in agriculture. But the work efficiency of a significant portion of such collectives remains at a low level. This is due to the fact that they violate scientific principles of completing cost-accounting targets, accounting, forming of labor collectives as well as scientifically based systems of organization and remuneration of agricultural labor and democratic bases of management. At a number of farms, this work is of a formal, campaign character, and preference is given to the quantitative side to the detriment of quality.

It is necessary to significantly raise the organizational level of this work in the republic and to increase the responsibility and role of specialists and heads of farms in this work. It will be necessary to complete by 1985 organization of contract brigades and links on irrigated land.

It is important to raise planning in our republic to a qualitatively new level and to ensure the development of balanced plans of economic and social development of the entire agroindustrial complex of Ukrainian SSR and concentration of capital investment and resources on the basic directions of intensification of agricultural production (first of all, farming) under the most favorable soil and climatic conditions and on the accelerated solution of the social problems of the countryside. In planning, the program-goal approach, economic-mathematical methods and electronic computers should be more widely and more boldly used.

Measures for accomplishment of the USSR Food Program adopted by the Communist Party and the Soviet government create new material and social-economic conditions and possibilities for the further development of agroindustrial production. At the same time this program presents us with a number of major and complex organizational and economic, technical and technological problems. The role of science is growing immeasurably in their development and practical solution. Today scientists have already done much to boost agriculture, and present achievements in the development of this sector are the result of fruitful collaboration of scientists and specialists.

But the present rate of scientific-technical progress in agricultural production does not conform to the set tasks and does not ensure the required rise of the technical-economic level of the majority of its sectors and productivity of agricultural labor as well as growth of the stability of agricultural production. Many of the problems of contemporary agricultural production have still been insufficiently worked out by science. These include questions of improving use of land and the bioclimatic potential, creation of varieties resistant to diseases, pests and lodging of crops as well as unfavorable

environmental factors (first of all drought). Unfortunately, most of the new regionalized intensive varieties of wheat, potatoes and sugar beet have a lower content of gluten, starch and sugar. Questions are little developed in regard to the further improvement of herd reproduction, increase of the volume of production and raising of fodder quality.

A serious problem for agricultural science also continues to be development and introduction of comprehensive energy-saving technologies of agricultural-crop cultivating ensuring the production of stable harvests under difficult weather conditions. It is necessary to significantly raise the level of economic and sociological researches connected with the solution of questions of improvement of the economic mechanism and operation of the agroindustrial complex. In the final analysis, the effectiveness of science, as we know, depends on how rapidly and completely the results of research are realized in practice.

It is understandable that the solution of these and other large-scale tasks of the food program is possible only under the condition where, quoting V.I. Lenin's words, management is concentrated in the hands of fully competent personnel, guaranteeing work success and where politically mature, creatively thinking, energetic people of initiative are to be found in all sectors.

Today an average of 40 specialists with higher or secondary education work on every farm of our republic. Most kolkhozes and sovkhoses are headed by highly qualified, experienced personnel. This is a big resource. And the most important prerequisites of successful work by agricultural managers and specialists are in being able to utilize this resource, to create necessary conditions for the life and labor of each worker in the sector, to develop initiative and socialist enterprise, to support his creative search and desire for vocational growth and to systematically raise his qualifications.

Fulfillment of the plans of the current five-year plan and the food program as a whole will be that more successful if we more determinedly boost the role and responsibility of the vast army of managers and specialists of agriculture and of the entire agroindustrial complex, struggle against inertia and bureaucracy, improve forms and methods of work with them and also teach them a genuinely creative approach to their work.

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## REGIONAL DEVELOPMENT

### BELORUSSIAN PARTY CONFERENCE REVIEWS LIVESTOCK, FEED PROBLEMS

Minsk SEL'SKAYA GAZETA in Russian 31 May 84 pp 1-2

[Excerpt] Additional measures for the procurement of fodder in 1984 and the successful completion of the wintering of cattle in the period 1984-1985 were examined at the republic conference of the party, soviet and economic aktiv that took place 30 May in Minsk.

Invited to the meeting were the first secretaries of the party obkoms, the first secretaries of the party gorkoms and raykoms, the chairmen of the oblispolkoms, the first deputy chairmen of the oblispolkoms in charge of agricultural matters, the chairmen of the rayispolkoms, the first deputy chairmen of the rayispolkoms and chairmen of the RAPO [rayon agroindustrial association] soviets, the directors of the ministries and departments of the APK [agroindustrial complex] and other ministries of the republic, responsible workers of the Belorussian CP Central Committee staff, the BSSR Supreme Soviet Presidium, the BSSR Council of Ministers, the Belorussian Council of Trade Unions and the Belorussian Komsomol.

N. N. Slyun'kov, first secretary of the CPB Belorussian CP Central Committee, presented a report at the conference.

Our republic's agriculture, he said, has begun one of the responsible campaigns, the campaign to procure fodder for animal husbandry. Considering its extraordinary importance and the peculiarities of the formation of the harvest of winter grains and grasses under the conditions of this spring, the Belorussian CP Central Committee Buro deemed it necessary to convoke this conference to consult with you, to develop together a line of active measures in this specific situation and to determine measures in procuring fodder this year in the planned volume and of high quality.

As a result of the intense work of party organizations, soviet and agricultural organs, and all rural workers at the kolkhozes and kovkhozes of the republic, the sowing of winter and spring crops for harvest in 1984 was basically carried out in optimum time and at a higher agrotechnical level. On the farms and in the rayons with normal soil moisture, a good harvest of grain crops, intercrops, perennial grasses and other fodder crops is taking shape.

At the same time, because of the lack of precipitation last fall and at the beginning of this spring in some rayons of Gomel', Brest, Minsk and Mogilev oblasts, vast areas sown in grain crops and grasses were suppressed.

According to the conclusion of specialists of the BSSR Ministry of Agriculture and our experts, it is expected that the first cutting of perennial grasses in the republic will be 10 percent under last year's level, and the cutting from natural meadows will be 20 percent lower.

All of this creates a strained situation in fodder production as well as in solving the task that we have set of procuring significantly more fodder this year than last year, without which it is impossible for the republic to reach the indicators foreseen by the Food Program.

However, one should not dramatize the situation. It demands one thing, the full mobilization of party committees and organizations, soviet and agricultural organs, and all of our personnel. What is needed above all is the immediate and maximum application of all reserves and sources for the additional accumulation of fodder. The task is that of exceeding the production level of last year's first cut by at least 10 to 15 percent.

In a word, it is necessary to have at least 19 quintals of feed units per standard head for the winter period, including 11 quintals of grass fodder. The task is not simple but it is realistic and achievable. The rains that fell in May and the sum of positive temperatures improved the conditions for growing and developing grasses not only on the crop meadows and pastures but also on the non-agricultural lands. It must all be harvested without the slightest losses.

Our forces, of course, should be concentrated mainly on the timely and good-quality harvest of perennial sown grasses and grasses from natural hayfields. At the same time, it is necessary to procure not less than 5 million tons of green material from the non-agricultural lands of the State land resources. Knowing that it is difficult to use machinery on these lands, one should make wide use of hand harvesting and involve in this work the entire able-bodied population of the rural area as well as the collectives of the enterprises and organizations of the cities and rayon centers.

At the industrial enterprises of the republic, it is urgently necessary to organize the production of manual hay-harvesting implements in a quantity large enough to satisfy in full the requirements for it of kolkhozes, sovkhoses and the population.

At the present time, there is a broad front throughout practically the entire territory of the republic to harvest grasses and procure fodder. Many farms and rayons are already actively involved in this work.

Not all kolkhozes and sovkhoses, however, have taken into account last year's errors and begun to mow hay, even though the time to harvest early-maturing

grasses and to mow seed clover has arrived practically everywhere. Delay here is tantamount to large losses that cannot be made up.

On every farm and in every rayon, there should be concentrate work plans and schedules for carrying out the harvest of first-cut grasses, including from the nonagricultural lands of the State land resources. These plans must consider all areas that are subject to harvesting, the amount of fodder to be procured, the calendar periods for carrying out the work and the human resources and machinery to be used in performing this work.

N. N. Slyun'lov then referred to questions involving the readiness for work of fodder-harvesting equipment, and then noted that in a number of rayons, particularly in Braslavskiy, Dubrovenskiy, Lioznenskiy and Ostovetskiy rayons, a significant portion of the machinery is still defective.

The directors of the BSSR Goskomsel'khoztekhnika [BSSR State Committee for Agricultural Equipment] and the engineering services must draw serious conclusions from this, but the main thing is to take urgent measures to correct the situation.

It is necessary to organize a 24-hour service, including days off, of specialists in the workshops of kolkhozes and sovkhozes and rayon associations of "Sel'khoztekhnika" [Agricultural Equipment Association] so as to provide for the repair of fodder-harvesting equipment in a practical and suitable manner.

One of the bottlenecks that we have in fodder procurement conditions to be transport. Therefore, an important task of each farm and of the agro-industrial associations is the highly productive utilization of all transport means.

By order of the Belorussian CP Central Committee and the Belorussian Government, the industrial enterprises of the republic have organized the production of machines and equipment for fodder production. Although the established tasks are being carried out, the developing situation and the interests involved demand that the planned quantity of this equipment be manufactured ahead of schedule. It is important that the full semiannual contingent of self-propelled and attached fodder-harvesting combines, rakes and fans be delivered to our farms in the next few days and that all machines and mechanisms planned for the third quarter be delivered in July.

The course of constructing projects in fodder production must be accelerated. The schedule for turning over silage and haylage facilities is still not being met.

The BSSR Ministry of Rural Construction, tasked with constructing facilities for 125,000 tons of silage and haylage, has so far brought only 11,000 tons into operation, and haystorage facilities for only 10,000 tons out of a targeted 47,300 tons. Belmezhkolkhozstroy [Belorussian Interkolkhoz

Construction Organization] is failing to introduce trench storage facilities in Brest, Gomel' and Minsk oblasts. The sponsoring enterprises and organizations are not meeting the obligations that they entered into. They constructed haylage structures for only 7,600 tons and hay-storage facilities for 5,000 tons compared to the goals of 167,900 tons and 127,500 tons, respectively.

The BSSR Ministry of Agriculture, Ministry of the Fruit and Vegetable Industry, Ministry of Rural Construction and Belmezhholkhozstroy as well as party committees, oblispolkoms and rayispolkoms, should once again make an expeditious and careful review of all questions concerning each project and they should take measures to make possible the completion of the construction of hay sheds in June and of haylage and silage structures in July and August. And those projects for fodder production that were planned to go into operation in the third and fourth quarters should be brought in ahead of schedule.

It is necessary to eliminate existing shortcomings without delay and to begin the mass procurement of fodder on every farm. The technical potential of kolkhozes and sovkhoses allows this work to be performed quickly and well, and it permits grasses to be harvested in the optimum periods, the first mowing being completed in 20 to 25 days. Machinery should be operated throughout the daylight hours everywhere, in two shifts using the flowline-group method. The material and technical means available not only at kolkhozes and sovkhoses but also in the organizations of "Sel'khoztekhnika" and "Sel'khozkhimiya" [Agricultural Chemicals Association] should be taken good care of. Their equipment must be consolidated in permanent fodder-harvesting detachments.

Every farm should be prepared to harvest grasses under any weather conditions, not just on sunny days but also when it is rainy and gloomy.

All organizational and technical measures must be subjected to the overriding consideration of reducing to a minimum losses of nutritive substances in raw materials. It is necessary to choose the most nearly optimum variants of fodder procurement with consideration being given to the developing situation.

Fodder raw materials from the first mowing must, as was the case last year, be used mainly hay procurement. The goal is to have 2 tons of it per cow for the coming winter period. At the same time, there must be no reduction in the quantity of haylage procured. The use of green grass for silage must be avoided, for there are adequate areas sown in corn and other silage crops for this purpose.

It is necessary to bring about a fundamental change in the attitude toward using haylage silos. The advantages of these storage structures are known. Nonetheless, a significant part of them is vacant every year. Oblast and rayon agroindustrial associations and managers and specialists of kolkhozes and sovkhoses need to apply the rule that haylage should basically be stored only in silos. At the end of fodder procurement, all of them should be full.

The question of questions remains that of increasing the quality of all types of fodder. This is tantamount to increasing their quantity but without additional physical input. Scientific data showed that extending the harvest periods of grasses and a violation of the technological requirements of fodder procurement lead to a reduction of 20 to 30 percent in their nutritive value. This cannot be permitted.

It is a matter of honor for all rural party organizations and managers and specialists of the agroindustrial complex to do everything necessary this season to see that all fodders basically correspond to first-class standards.

It is essential to implement the entire complex of agrotechnical measures involved in obtaining a good harvest of grasses in the second mowing. Here it is important above all not to let the time of hay mowing pass and to treat the already-harvested areas with chemical fertilizers and liquid organic fertilizers.

Areas sown in repeat and intermediate crops are to become a significant reserve for increasing the harvest of green material. Under this year's conditions, it is necessary to strive to expand these areas, proceeding from the actual situation on each particular farm.

Referring to some promising aspects of improving fodder production, N. N. Slyun'kov pointed out the need to create stable seed management for grasses, without which it is impossible to obtain a high yield from each hectare devoted to fodder. Having a 1.5- to 2-year insurance supply of seed clover and grasses is a goal that must be achieved this year in every oblast, rayon and enterprise.

Another important problem is that of bringing about a fundamental improvement in meadows and pastures. The scope of this work was determined by plans and targets. But life demands that corrections be made there, since the efficiency of natural fodder lands is still low. Gosplan, the Ministry of Agriculture and the Ministry of Land Reclamation and Water Resources of the BSSR, Glavpoles'yevodstroy and the oblispolkoms must determine the precise scope of their improvement and reconversion to meadowland in each rayon for the period through the end of the Five-Year Plan.

The successful harvest of grasses, continued the speaker, depends quickly and immediately on the precise organization of the work of people.

This year in the republic, more than 3,000 brigades working on a contract basis will be involved in fodder production. On their shoulders will be the procurement of more than half of all fodder. That is why party, soviet and economic organs need to pay particular attention to them and be concerned with their conversion to a wage system of job contract plus bonus for final output.

Concern for fodder and for increasing its quantity and improving its quality is a concern for increasing the production and procurement of output in animal husbandry. At the kolkhozes and sovkhoses of the republic in the months of January through April of this year, the sale of livestock and poultry for slaughter increased by 14 percent, and gross milk production increased by 9 percent. Milk yield per cow rose by 50 kilograms. Satisfactory preconditions were created for successful fulfillment of commitments, for eliminating obligations to the State for milk purchases and for reducing obligations for meat sales.

However, at the time when public livestock is going over to a summer feed regime, in a number of places there has been a reduction in the rate of growth of output, and there was even a decline in the productivity of cows in Grodno and Minsk oblasts. At some kolkhozes and sovkhoses, they did not concern themselves in time with providing farms with personnel, especially cowherds and shepherds, and they did not maintain electric fences, capacities for watering livestock and other pasturing implements. On individual farms, pastures are used unsystematically and methods for pasturing livestock are not being heeded.

Favorable conditions have now developed everywhere for increasing animal productivity. The task is to provide for an increase of not less than 60 kg in the milk yield per cow during the pasturing period and to obtain average daily weight gains of 650 to 700 grams for cattle being raised and fattened and of 350 to 450 grams for hogs. Only in this event will the limits specified in the commitments of the republic's workers be reached.

It was noted in the report that an important place in building up the resources of milk and meat belongs to the private subsidiary plots of citizens. Kolkhozes and sovkhoses are obligated to be as attentive to providing the livestock in the hands of the population with fodder as they are in producing fodder for public animal husbandry.

N. N. Slyun'kov stressed that today there is much urgent work to be done in the republic's grain fields. A check carried out by specialists of the plant-protection service has shown that over large areas weeds are very bad, and this means that they must be fought with doubled or tripled efforts. Everywhere work must be activated to look after areas sown in grain crops, edible roots, potatoes, corn and vegetables, and this work must be carried out with consideration given to the developing weather conditions.

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## REGIONAL DEVELOPMENT

### PROBLEMS OF URAL ECONOMIC REGION REVIEWED IN OFFICIAL REPORT

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[Article by L. Shumskiy, deputy chief of the Main Production Administration of the Ural Region of the RSFSR Ministry of Agriculture: "Improve Production Efficiency"]

[Text] A 2-day conference-seminar of managers of republic ministries and oblast administrations of agriculture in the Ural economic region took place at the end of the past year in Chelyabinsk.

Comrade V. A. Goryashin, RSFSR deputy minister of agriculture, delivered the opening address at the conference.

The conference discussed the tasks of local agricultural organizations with respect to improving economic work and increasing the effectiveness of agricultural production in light of the decisions of the May and November (1982) Plenums of the CPSU Central Committee.

Comrade L. F. Shumskiy, deputy chief of Main Production Administration of the Ural Region of the RSFSR MCKh [Ministry of Agriculture], delivered the principal report.

An account of Comrade Shumskiy's report and of speeches by participants at the conference-seminar is published below.

The Food Program, developed in accordance with 26th CPSU Congress, precisely defines the prospects and means of resolving the most important problems of the Soviet people. Among them the task of providing an uninterrupted supply of food to the people and improving the nutritional structure of the Soviet people has been given priority. The further development of agriculture and improved efficiency of all its sectors is the basis for accomplishing this program.

The party and the state are developing all the necessary material and organizational prerequisites for accomplishing the Food Program. Capital investments for the agricultural development of the Ural economic region in the 10th Five-Year Plan alone increased 1.5-fold in comparison with the preceding five-year plan. During the last 7 years capital supply and power-worker

ratio increased 1.7-fold, deliveries of mineral fertilizers to kolkhozes and sovkhoses -- 1.8-fold. The construction of housing, public facilities, and highways was increased considerably. Much work was accomplished on training and retraining personnel and on strengthening the financial interest of workers.

At the same time the growth rate of agricultural production for the first few years of the 11 Five-Year Plan was somewhat slower. In spite of considerable state aid the kolkhozes and sovkhoses were not able to ensure the accomplishment of the tasks, which resulted in a reduction of production efficiency and a nonfulfilment of the sales plan with respect to the sale of certain types of products to the state. On the whole, the indebtedness of the Ural region to the state for the years 1981--1983 amounted to 215,000 tons of meat, 425,000 tons of potatoes, 140,000 tons of milk, 97,000 tons of vegetables, and 1.5 million tons of grain. In many farms not only were the plans not fulfilled, but the yields of grain and a number of other basic crops and the productivity of cattle declined in comparison with the 10th Five-Year Plan, production outlays increased, the productivity of labor decreased, and price increases for products in comparison with the plan were allowed. The indebtedness of kolkhozes and sovkhoses to Gosbank as far as long-term and short-term credits are concerned increased 1.7-fold in comparison with 1975, and the indebtedness of the farms in Perm Oblast and Udmurt ASSR increased 2.4-fold and 2.8-fold respectively. During the years 1981--1982 the sales volume and the gross income of kolkhozes were reduced by almost one-third and the wage fund increased by 11 percent in comparison with the years 1976--1980.

From all this one can draw the conclusion that the economic situation in the majority of farms in the Ural region is unsatisfactory.

What are the reasons for such a situation?

As is known, there were also objective reasons: a non-observance of price parity between agricultural output and the means of production supplied to rural areas, expenditures exceeding incomes when purchase prices were low, a violation of equivalency in the calculations between kolkhozes, sovkhoses, and the organizations servicing them. All these facts were disclosed and thoroughly examined at plenums of the CPSU Central Committee. Specific measures for their elimination were defined by the party and the government. They are well-known. It should only be emphasized that equal opportunities for strengthening production and radically improving the economic situation of farms are being developed for the first time on a nationwide scale for farms operating under various natural and economic conditions. Thus the debt to the state on credits for 418 million rubles was written off for the kolkhozes and sovkhoses. In 1983, 690 million rubles were directed toward the farms of the region for raising purchasing prices, and, moreover, 787 million rubles were allocated as fixed additions to purchase prices for marginally profitable and unprofitable farms, which meant a total allocation of nearly 1.5 billion rubles. In practice this should provide for operating conditions in agricultural production that do not entail a loss and even for a certain amount of accumulation for conducting an expansion of reproduction.



The results of the preceding year attest to the fact that in the operations of the majority of kolkhozes and sovkhoses there is a number of positive improvements in the increase of production and the sale of agricultural and livestock products to the state. Orenburg Oblast, Bashkir and Udmurt ASSR, and Perm and Sverdlovsk oblasts overfulfilled the plan for the sale of grain to the state. Chelyabinsk and Kurgan oblasts accomplished reduced tasks with respect to this index. The plan for the procurement of vegetables was overfulfilled by Sverdlovsk and Chelyabinsk oblasts. The production of coarse and succulent fodder increased, the procurement of these types of fodder per head of cattle on the average throughout the zone was 18.3 quintals of feed units, which is 3 quintals more than in 1982. The condition of animal husbandry was improved. In the preceding year the productivity of cattle and poultry increased, which made it possible to fulfill the plan for the sale of all types of livestock products to the state by each oblast and autonomous republic in the zone.

The farms of Perm and Sverdlovsk oblasts and Udmurt ASSR achieved an essential increase in the yield of milk. Weight gains were recorded for all types of livestock on the farms of Orenburg and Sverdlovsk oblasts and Bashkir and Udmurt ASSR.

At the same time, the results for the year make it necessary to point out that the decisions of the party regarding the comprehensive intensification of agricultural production have not been carried out satisfactorily in a number of farms and the opportunities for kolkhozes and sovkhoses to increase their crop yields and livestock productivity are far from being fully utilized. Grain and potato crop yields turned out to be less than what was called for in the plan, and as a result, the production plans for grain, potatoes, oil-yielding and bast-fiber crops, and fodder from personal production were not fulfilled throughout the zone on the whole. Large grain, potato, and feed crop losses were allowed in the kolkhozes and sovkhoses of Kurgan, Chelyabinsk, and Sverdlovsk oblasts. In many farms the incidence of barren livestock and cattle plague is high and the quality of sold output frequently does not meet the standards.

All this resulted in the fact that the financial results for the year turned out to be lower than those stipulated in the plan, a significant number of farms ended the year with losses, and in Kurgan Oblast such farms comprised almost 40 percent. The profit plans were not fulfilled in the kolkhozes of all the oblasts (with the exception of Bashkir and Udmurt) and also in the sovkhoses of Kurgan, Orenburg, and Chelyabinsk oblasts.

The high prime cost of output, which exceeds the planned indicators in all types of output, is the fundamental reason for this situation.

The overall increase in the cost of output amounted to 15 percent compared to the plan, and in comparison with 1976 the prime cost of all types of output increased by 30 percent. The largest cost increases were permitted in the farms of Kurgan and Orenburg oblasts and Bashkir ASSR. Moreover, it is paradoxical that in spite of the improved indicators with respect to crop yields and livestock productivity, the prime cost of output in many farms turned out to be higher than in 1982.

Among the reasons causing this cost increase are, of course, objective reasons also (increases in the cost of industrial output and services, increased depreciation allowances, rising insurance payments, higher wages, and so on). But the main reasons, without a doubt, are subjective and are completely dependent on the capability of managers and specialists to manage production according to modern standards, to disclose negative factors, to eliminate them in time, and to conduct purposeful work for improving the efficiency of production. The proportion of these reasons is considerably more significant than objective reasons.

Here is an example. In the last 5 years the prime cost of grain in kolkhozes of Udmurt ASSR increased almost 1.6-fold. An analysis of expenditure increases according to elements shows that one-third of the cost increase occurred as a result of increased expenditures for GSM [fuel and lubricants], fertilizers, current repairs and depreciation, and other objective reasons, and two-thirds was the consequence of an overexpenditure for wages, higher seed prices, and a significant increase in other expenditures, including general output and farm expenses. Simply stated, this is the result of disorganization, a lack of discipline, and poor management.

The primary reason for the increase in the prime cost of agricultural output is the nonfulfillment of plan yields and gross harvests over a period of several years. What is holding back the growth of crop yields? First of all, the low level of seed-growing. Meanwhile, a well-organized seed-growing operation has a great deal to do with determining the level of crop yields. Thus thanks precisely to a high level of seed-growing production, the Kolkhoz imeni Sverdlovsk and the Borodulinskiy Sovkhoz in Sverdlovsk Oblast and other leading farms have achieved high harvest levels every year. To our immense regret, their experience for some reason or other is not being disseminated everywhere. In many farms of Kurgan Oblast and Udmurt ASSR seed-growing is being conducted at a low level, and in Perm Oblast it is a chronically sick sector of agronomy. Many kolkhozes and sovkhozes annually meet the demand for seeds at the expense of the state. In the last 2 years the farms of Udmurt ASSR and Perm Oblast have been allocated 45,000 and 101,000 tons of grain seeds respectively -- more than one-third of the seed supply -- from state reserves. How can one seriously talk about increasing crop yields and strengthening the fodder base and consequently the whole economy without a source of high-quality seeds! A decisive improvement in seed-growing production is an urgent task of the agricultural organs.

Improving the fertility of soil by means of a full utilization of organic and mineral fertilizers and the further chemicalization of fields is the primary condition for improving harvests. The necessity for this is caused by the alarming circumstance that the humus content of soil is constantly decreasing in the majority of the farms in the zone. According to the data of scientific institutions for the last 20 years, its content has been reduced by 12--18 percent in leached and alkaline chernozem and in soddy podzolic soils, and the loss of nutrients far exceeds their introduction into the soil. During the years of the 10th Five-Year Plan the annual loss of NPK exceeded their introduction into the soil in Chelyabinsk Oblast by 28 kilograms per hectare, in Kurgan Oblast -- 34, and in Orenburg Oblast -- 41 kilograms per hectare. Can

we accept this? Not in any case! According to the calculations of scientists, no less than 8--10 tons of organic fertilizer must be put into each hectare of plowed field annually in the Ural region in order to restore a self-supporting balance of humus. Only under such conditions and with a further increase in the introduction of mineral fertilizers will it be possible to talk about a constant improvement of soil fertility.

Meanwhile, only a little more than 3 tons of organic fertilizer as opposed to 2.5 tons in 1975 is being put into a hectare of plowed field on the average throughout the zone. The volume of manure used for fertilizer increased by only 30 percent throughout the Ural region on the whole in the last 7 years, in Perm and Kurgan oblasts it remained at the 1975 level, and in the farms of Udmurt ASSR it even decreased.

It must be recognized that we have few storage facilities for manure, we make poor use of liquid manure, peat, and guano, we do not use straw for collecting manure, and we do not observe the proper methods for introducing organic fertilizers into the soil. More than half of all the organic fertilizers in the field is gradually removed by bulldozers. Immense losses of nutrients are permitted because of the irrational storage and utilization of fertilizers. Very little manure is spread on fallow land. In the past year only 7.2 percent of fallow fields was fertilized in Kurgan Oblast, 10 percent in Chelyabinsk Oblast, although the amount was three times as much in the neighboring oblast of Orenburg. In the farms of Bashkir ASSR and Kurgan Oblast 18--27 percent of the annual volume of organic fertilizer is spread in the winter. The question arises as to what could be the possible benefit from such a practice? I think that this is labor expended for no purpose.

The comprehensive agro-chemical cultivation of fields, which completely corresponds to the task of the effective utilization of fertilizers and means of chemicalization, should become the basic method of improving the fertility of the land. However, this work is not being given proper attention everywhere. Far from all the republic, oblast, and rayon agro-industrial associations have actually conducted a thorough investigation of its essence and they have not developed organizational work for the extensive cultivation of fields.

The rational utilization of the opportunities of chemicalization is the most important factor in the intensification of agriculture. Deliveries of mineral fertilizers to the farms of the zone are increasing annually. In the last 7 years they increased 1.8-fold and amount to approximately 40 kilograms per hectare of plowed field. However, as a consequence of their irrational and inefficient utilization, harvests in the 11th Five-Year Plan did not, practically speaking, increase in comparison with the 10th Five-Year Plan. Acid soil, which occupies 6.8 million hectares in the zone, becomes calcareous slowly and its area almost does not diminish. The area of highly acidic soil diminished in Udmurt ASSR by 10.6 percent, in Sverdlovsk Oblast by 7.2 percent, and in Perm Oblast by only 2.9 percent during the years of the 10th Five-Year Plan. In Perm and Sverdlovsk oblasts the volume of mineral fertilizers per hectare of land under grain crops was increased 2.2-fold during these years, and grain yields were increased by 17 and 34 percent respectively.

It is impossible not to mention the persistent underestimation of the local and more effective method of applying mineral fertilizers in a number of places, particularly in Kurgan Oblast where only a fifth of the grain seeds is sown together with granules. On the whole, they are applied locally throughout the Ural region on 65 percent of the area sown under grain crops even though all the possibilities exist for their application on 80 percent of the area.

The ministries of the ASSR, the oblast administrations of agriculture, and the rayon agro-industrial associations should intensify their work on assimilating the scientifically based system of agriculture in each kolkhoz and sovkhos in order to ensure that the managers and specialists of the farms will accomplish the whole spectrum of measures envisaged by this system.

Animal husbandry in the majority of the oblasts and ASSR of the Ural region is a key sector and amounts to 60 percent of the volume of gross output. Approximately 7.5 billion rubles or 52 percent of fixed productive capital is concentrated in this sector, which employs 30 percent of all workers. Animal husbandry makes up 74 percent of the total volume of the sale of agricultural products and consumes 53 percent of the material-monetary outlay in basic production. A 1-percent reduction of expenditures in animal husbandry will produce a savings of 41 million rubles.

Considerable means have been invested in the development of this sector in the last few five-year plans. Fixed capital has been increased at an especially rapid rate. In the past 7 years it has been increased by 62 percent and, on the average, 23,700 rubles' worth of fixed capital is expended annually on the average worker in animal husbandry, or almost twice as much as is spent, on the average, for agricultural production.

In the last few years of the 10th Five-Year Plan and in the beginning of the 11th Five-Year Plan, the production rate of animal husbandry products slowed down, which resulted in the fact that the plans for the production and sale of milk and meat to the state for 1981--1983 were not fulfilled, and losses were recorded in the sale of output. The prime cost of output in animal husbandry increases every year in the majority of farms. Especially large price increases for additional weight of livestock and for milk occurred during the last 7 years in the sovkhoses of Perm Oblast and for additional weight of livestock in Bashkir.

It seems paradoxical that many farm managers and specialists cannot give intelligible explanations for the reasons that the prime cost of output has increased at the same time that productivity has increased. One gets the impression that besides bookkeepers, and far from all of them, no one is interested in these figures, especially the managers of this sector, production engineers, who do not have a thorough understanding of the economic system, and the whole trouble, as they say, is that they are just doing their job. The economists do not trouble themselves with a thorough analysis either -- they are occupied with plans day and night!

Meanwhile, analysis shows that the growth of the prime cost of output in animal husbandry is, to a significant degree, the result of large nonproductive

expenditures and losses. In 1982 alone losses in sovkhoses and kolkhozes from murrain amounted to 116 million rubles including 24 million rubles in Kurgan Oblast where, by the way, plans for the procurement of coarse and succulent fodder were overfulfilled. In the same year because of a high rate of infertility among cows in the farms of the zone, milk production fell off by 470,000 tons, amounting to a total of 140 million rubles (not counting new animal births), of which approximately 80 million rubles or 57 percent is attributable to the farms of Orenburg and Chelyabinsk oblasts and Bashkir (Chelyabinsk Oblast was also completely supplied with coarse and succulent fodder).

We are allowing considerable losses from the sale of low-grade and low-fat milk. Only 70 percent of the milk delivered from the dairy industry throughout the zone as a whole is of the highest grade -- milk from the farms of Kurgan and Orenburg oblasts is of an even lower quality. In Perm Oblast where there are not diseased cattle, only 61 percent of the milk is of the highest grade. This results in 2 million rubles of lost earnings per year. Because of the low quality of milk there was a loss of 92 million rubles throughout the Ural region as a whole.

Everything is far from going well with the fattening of livestock, the reproduction of herds, and the utilization of feeds. We should apply persistent efforts to the resolution of these and other problems.

Expenditures for the procurement and maintenance of tractors and other farm machinery and equipment make up a large proportion of material expenditures on the production of agricultural output. The kolkhozes and sovkhoses of our region are annually equipped with new and more modern machinery and equipment, which makes it possible to reduce the expenditures of labor on the production of output. For 1982 alone the farms of the region acquired various kinds of equipment worth 590 million rubles. Expenditures on the operation of tractors and farm machinery, including capital repairs in 1982, reached 1.5 million rubles. During the last 7 years as the volume of mechanized operations has increased by 21 percent, expenditures per hectare of plowed field increased by 28 percent, and in Sverdlovsk Oblast -- by 33 percent. The average daily and shift operations by tractor have remained practically at the same level in the last few years (7.8 and 7.2 hectares respectively).

The unsatisfactory utilization of equipment is inflicting damage on the farm economy. The task of putting unassembled equipment into operation is not being accomplished. In the first half of the preceding year in a plan calling for 30.7 million rubles, 7.5 million rubles were put into operation. In individual farms even imported equipment lays around for years in warehouses and is subject to damage from neglect. In the Troitskiy and Chelyabinsk sovkhoses and in the Sovkhoz imeni Lenin in Sverdlovsk Oblast the equipment of two seed cleaning lines, manufactured by the Petkus Firm in the GDR at a cost of 63,000 rubles, has been laying out in the open since the beginning of the 10th Five-Year Plan and has become practically worthless. What is scandalous is that this, evidently, does not disturb the engineering and agronomy offices of the oblast administrations. So far no one has been held responsible for this.

Expenditures for wages, which have increased inordinately in the last few years, make up a significant proportion of production costs. This attests to

serious deficiencies in the utilization of labor resources, organization, and payment of labor. Labor participation in social production remains low with respect to individual categories of workers, there are many instances of lateness and absenteeism. The loss of work time is especially great in the farms of Perm Oblast, Udmurt ASSR, and also in Sverdlovsk and Kurgan oblasts and Bashkir ASSR.

In the present situation with a critical shortage of a labor force the unsatisfactory utilization of labor resources and poor labor discipline are intolerable. The same decisive measures should be taken for raising the level of labor participation, better utilizing work time, and improving the efficiency of labor and a decisive struggle should be waged against absenteeism.

The productivity of labor in the first 2 years of the five-year plan on farms in the Ural region did not increase significantly and even decreased on farms in Orenburg Oblast and Bashkir ASSR as a consequence of arrears in output and the incomplete utilization of existing material and labor resources. At the same time wages increased an average of 12 percent in this same period in the region as a whole, and on the farms of Orenburg Oblast and Bashkir ASSR they increased 22 percent. The productivity of labor increased 6 percent in Udmurt ASSR, but wages increased 31 percent.

The most important reserve for increasing the productivity of labor is the introduction of progressive forms of organization and payment of labor into production and, above all, a collective contract with time-rate partial advance payments to the accounts for output. This has been confirmed by the operational experience of many collectives in Orenburg, Sverdlovsk, and Chelyabinsk oblasts in plant-growing and animal husbandry. It is necessary to improve work on the introduction of progressive forms of labor organization in animal husbandry: the continuous workshop organization of labor, a dual-cycle routine, and double shift work on farms and collectives. Work on the introduction of a workshop management structure is in need of serious improvement.

The improvement of rural construction is one of the most important component parts of agrarian policy at the present time. The accomplishment of tasks to improve the efficiency of agricultural production depends, to a great degree, precisely on the level of rural construction.

Measures for the social reconstruction of rural areas make up an organic part of the Food Program, as was emphasized at the May (1982) Plenum of the CPSU Central Committee. We are obligated to carry out concrete measures for significantly increasing the volumes of housing, public, and cultural construction in the 11th Five-Year Plan and also for accelerated construction of roads in kolkhozes and sovkhozes.

This is even more imperative since the plan of the first 2 years of the current five-year plan for the acceptance of housing, preschool facilities, and clubs has not been completed, and the annual completion of apartments per farm fluctuates from four in Bashkir ASSR to 18 in Chelyabinsk Oblast. Not one single apartment was built in 1982 in 376 farms of the region (12 percent of the total number), and in Bashkir ASSR the proportion of such farms is 28 percent.

The economic operational indicators of farms depend, to a great degree, on the organization of the accounting department and the control over their economic and financial activities. However, there are serious deficiencies in the organization of the accounting departments in many farms of the region. One of the major deficiencies is the late entry of receipts for agricultural output. In a fourth of the farms audited in Orenburg and Sverdlovsk oblasts and Bashkir ASSR data on the gross collection of grain were, as a rule, misrepresented as revenue not received. And this is a direct path for its misappropriation. In many documents pertaining to the shipment of livestock the degree of fattening is not shown and no records are made of the quality of milk. The kolkhozes and sovkhoses of Udmurt ASSR permitted losses of more than 4 million rubles in milk deliveries to the state in 1981--1982 alone. The accounting of jobs and services accomplished for kolkhozes and sovkhoses by service organizations is not organized as it should be, and as a result, miscalculations amounting to large sums take place in the farms. In the first half of 1983 67,500 rubles too much were paid by the kolkhozes and sovkhoses of Orenburg Oblast to enterprises of Orenburg Sel'khoztekhnika [Agricultural Equipment Association] as the result of an incorrect application of wholesale prices for the repair and assembly of equipment. The procurement offices of Orenburg Oblpotrebsoyuz [Oblast Union of Consumer Trade Cooperatives] did not make on-time payments to marginally profitable and unprofitable sovkhoses on allowances for wool and raw hide, which resulted in the fact that the kolkhozes and sovkhoses of the oblast were paid approximately 1 million rubles in the past year. In Chelyabinsk Oblast the Varnenskiy Milk Plant illegally deducted 35,300 rubles for skim milk from the farms.

The growing volume of production demands an improvement of the accounting department and its transition to comprehensive automation. Unfortunately, such a form of accounting has been introduced in only 47 sovkhoses and 67 kolkozoes of the region. This work has been unsatisfactorily organized in Sverdlovsk, Perm, and Kurgan oblasts and it has deteriorated noticeably in Orenburg Oblast. Comrades G. I. Sosunov, I. N. Naumov, and V. V. Bukatov, chiefs of the accounting departments of oblsel'khozupravleniye [Oblast Agricultural Administration], are not sufficiently demanding of the accountants in the regional network and do not require that they carry out the measures developed for improving accounting procedures. Moreover, such forms of accounting as summary journal, current accounting of commodity and material prices, the accounting of fixed capital on inventory cards, which can no longer be called new, have been introduced in only 72--82 percent of the farms. Their introduction has been slow in Orenburg Oblast and Udmurt ASSR.

One of the reasons for deficiencies in accounting is the low level of the professional training of accountants. Out of 19,800 people only 12 percent has a higher education, 32 percent -- a secondary education, and the remaining -- has only practical experience. At the same time the training of accounting personnel is not being conducted in a satisfactory manner.

There are serious shortcomings in the observance of financial discipline. In many farms state and cooperative funds are used in an extremely unsatisfactory manner, and sometimes not even for the intended purpose. The construction of unplanned projects at the expense of working capital is still being continued

here and there. Incidents of expending kolkhoz and sovkhos funds on purposes not connected with agricultural production have not been eliminated. In 1982 alone working capital amounting to 108 million rubles was transferred free of charge to other organizations.

The directors and workers of the finance and accounting offices of the ministries, the agricultural administrations of the oblistpolkoms and rayispolkoms, and kolkhozes and sovkhos have resigned themselves to the fact that large sums are constantly being diverted from the turnover of farms to debts. According to the status on 1 October 1983, the indebtedness from other accounts receivable alone (in addition to clients) amounts to 44.6 million rubles, which is almost enough to pay off the loans of Gosbank. The kolkhozes and sovkhos of Orenburg, Perm, and Kurgan oblasts and Udmurt ASSR, where each farm has from 8,000 to 15,000 rubles' worth of debts, are working on the liquidation of their debts in an unsatisfactory manner.

The kolkhozes and sovkhos of the region are incurring very large losses because of misappropriations, shortages, damage to physical commodities, and other forms of mismanagement. These losses amounted to 17 million rubles in 1982. Moreover, only 7 million rubles of exposed shortages and acts of embezzlement were attributable to guilty parties, the remaining sum was written off as part of the cost of production.

Essential deficiencies in providing for the safety of socialist property is, to a significant degree, connected with the improper selection of personnel responsible for the prevention of damage to property and with the poor organization of intrafarm financial control and auditing. The inventory of physical commodities and livestock in individual kolkhozes and sovkhos is not being conducted in accordance with the established time limits and is frequently accomplished in a perfunctory manner while the directors of agricultural organs fail to give it proper appreciation and conduct unsatisfactory audits.

Such a situation must not be tolerated. The state of the organization of accountability and accounting and intrafarm control in agricultural enterprises must be examined and provisions must be made to ensure the economical expenditure of monetary and material resources and to raise the level of accounting and the effectiveness and authenticity of accounting data.

An important role is given to the further improvement of economic work in the effort to improve the efficiency of agricultural production. More than 30,000 economists and accountants are presently working in the farms of the region. With a qualified leadership and a correct utilization of these specialists, they will be capable of conducting a large amount of work on an analysis of farm operations and the introduction of economic methods for the management of agricultural production.

Intrafarm cost accounting is the central link of economic work between each kolkhoz and sovkhos. It is not only a method of management, but cost accounting discharges an important function -- it cultivates in kolkhoz workers a sense of thriftiness and strengthens labor and industrial discipline. Much is said about cost accounting, but, in fact, we frequently disregard its basic



principles -- financial interest in and responsibility for the results of one's work, operational independence, and control of the ruble.

In the meanwhile, agricultural organs and farm specialists remain weak in the area of economics. At the present time the basic efforts of economic offices are aimed at establishing facts and explaining reasons. The bookkeepers and economists of the majority of farms rarely visit the farms, teams, and workshops, and personnel from economic administrative offices rarely go out to the farms. At the same time engineering specialists have completely stopped dealing with the economics of their own sector, they are not interested in expenditures or how they will be recouped. Many managers of farms and rayon administrations also have a weak understanding of economic methods of management. In each oblast and autonomous republic there are farms where the workshop management structure, intrafarm cost accounting with a limit-check form of control, and collective contracts have been introduced, but all three of these forms of labor organization and control have been systematically introduced in only a few farms.

Work on the introduction of cost accounting is being conducted reasonably well in Sverdlovsk Oblast where already 77 percent of the farms is applying the limit-check form of cost accounting. This is achieved by systematic work on the training of personnel and on control over the organization of economic work in each farm. Annual competitions for the best organization of economic work have been conducted here for many years already. An evaluation of the work in the system is given, and prizes are simultaneously fixed for economists and accountants.

Unfortunately, the limit-check form of control is being applied by only 15 percent of the farms in the Ural region, and the monthly limiting and summing up of results with respect to expenditures -- by a total of 34 percent. This work is being accomplished very slowly in Perm Oblast and Udmurt ASSR and in the kolkhozes of Orenburg Oblast. In the majority of the farms statements on cost accounting subdivisions are compiled before the 15th of each month and an analysis of the accomplishment of cost accounting tasks is done after the 20th to the 25th, which does not make it possible to effectively eliminate deficiencies in the operations of cost accounting subdivisions. The primary bottleneck in the introduction and improvement of cost accounting relations is the poor accounting and control of the activities of the primary sections of production.

The collective contract, in which the personal interests of the worker are combined most intimately with the interests of the farm, is an integral part of cost accounting.

Experience convincingly demonstrates the advantage of this form of organization and payment of labor. K. Ye. Darbayev's section from the Al'menevskiy Sovkhoz in Kurgan Oblast has been working according to the collective contract system for many years. The members of this section achieve high production indicators every year. In the preceding year the grain crop yield in this section was 20.6 quintals/hectare -- 5.4 quintals more than the average in the sovkhoz, and prime cost and expenditures of labor were less by 27 and 44 percent respectively.

P. A. Rusinov's section from the Rossiya Kolkhoz in Sarapul'skiy Rayon, Udmurt ASSR, which is comprised of 10 machine operators, harvested 31.4 quintals of grain per hectare from an area of 2,300 hectares. Comrade Rusinov's section was awarded the State Bonus of Udmurt ASSR for the high production indicators.

In animal husbandry more than 7,800 subdivisions, which supply 11 percent of the cows, 49 percent of the fattened head of cattle, 64 percent of the sheep, and 54 percent of the poultry, now operate on the collective contract system.

At the same time, little attention is given to this form of labor organization in Bashkir ASSR and Kurgan and Perm Oblasts. In 1984 this progressive form of labor organization should find a greater application in animal husbandry. Furthermore, mistakes and haste must not be permitted in the assigning of personnel to collectives. It is especially important to ensure the correctness of accounts on wages for output received. One must not permit the mistakes of past years in the pursuit of false savings.

To place the payment of farm workers in a dependence on the quantity and quality of produced output means to achieve an increase in the productivity of labor and the profitability of production.

The basis of production work in any kolkhoz and sovkhov is a production and financial plan in which all internal reserves and the introduction of advanced technology should be taken into consideration. The plan should be realistic. The planning office should thoroughly analyze the state of planning and develop more realistic plans. Correct economic relations with partners in the agro-industrial system are of considerable significance in the work on improving the economics of kolkhozes and sovkhovs. This is an important and new question for us. Extensive powers and independence have been granted to the agro-industrial associations by the decisions of the CPSU Central Committee and the government. This is reflected in the statutes on RAPO [not further identified] and in a number of resolutions. However, the rayon agricultural administrations take little advantage of their rights. The oblast administrations do not become involved in this work either. For some reason or other everyone is waiting for some kind of instructions. They have already been given and the rights granted should be implemented more courageously. One must proceed from the fact that the scope and nature of the work and services rendered by partners to the kolkhozes and sovkhovs are determined by the farms themselves. RAPO Councils determine prices for all types of work, develop centralized funds by means of profits from all the participants in APO, utilize them for the development of a base in more narrow sections, and determine questions on the financial interest of workers and specialists of servicing organizations in a dependence on the final results of farm operations. The transition to the formal acceptance of output at the site of its production is the most important question. All these and other questions should be resolved without delay.

In a short speech it is impossible to examine all the various and numerous factors affecting the level of agricultural production and determining its economic system. It is important to understand that there are many deficiencies and omissions at all levels of agricultural production in questions relating

to economic work, which means that this work is in need of a fundamental reorganization. This reorganization must not be postponed, it must be started immediately. The responsibility for the state of the farm economy and the level of economic work has been placed entirely on the agricultural organs, they have been given priority in the local management of the whole agro-industrial complex.

The decisions of the party and the government have radically changed the economic situation in rural areas as never before and are now developing favorable conditions for strengthening the farm economy and for the growth of agricultural production. These conditions must be utilized to the fullest degree.

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## REGIONAL DEVELOPMENT

### PROGRESS, PROBLEMS OF ESTONIAN AGRICULTURE REVIEWED

Tallinn SOVETSKAYA ESTONIYA in Russian 24 May 84 p 2

/Article by A.-B. I. Upsi, secretary of the Estonian CP Central Committee:  
"The Key Word is Intensification"

/Text/ About 2 years ago, the May (1982) CPSU Central Committee Plenum took place and became an important milestone in the history of the development of our party's agrarian policy. At a new stage in the development of the productive forces of our society, the Plenum made this policy more concrete and determined new directions for it, as well as new ways and methods for solving the tasks facing the country's agroindustrial complex /APK/. A large-scale and long-term program was adopted, a program that was designated the Food Program.

The most important element of this program is the transition from extensive to intensive development, with the attention of all APK sectors being directed to achieving maximum final results with minimum expenditures.

The experience in implementing the Food Program was analyzed and summarized at the All-Union Economic Conference for APK Problems that took place in Moscow on the 26th and 27th of March. Speaking at the conference was Comrade K. U. Chernenko, general secretary of the CPSU Central Committee and chairman of the USSR Supreme Soviet Presidium. In his speech and in the report of Comrade M. S. Gorbachev, Politburo member and secretary of the CPSU Central Committee, as well as in the addresses of other participants, the successes achieved in putting the USSR Food Program into effect were noted, but most attention was concentrated on the problems that exist in a more rapid implementation of this program.

As is known, 1982 was a complicated and difficult year for the agricultural workers of our republic. The effects of the poor harvest and severe weather conditions of 1981 were felt. Were it not for the selfless labor of thousands of people in the fields and on the farms as well as in the enterprises serving agriculture, that year's losses would have been significantly greater. But the fact remains that the republic remained obligated to the state to sell a number of very important agricultural products, including products in animal husbandry. That year became an important touchstone for testing the solidity and capacity of the new structure for managing the APK at the rayon level. And it must be said that as a whole the rayon agroindustrial associations passed the test.

At the same time, experience has shown that a number of questions related to the formation of agroindustrial associations /RAPO/ have not been removed from the agenda. This is why in 1983, with the support of the CPSU Central Committee Politburo, the APK administration was also reorganized at the republic level.

Today we have every reason to say that 1983 ended successfully for the APK of the republic. Without a doubt, the successes were based on the tremendous work of kolkhoz farmers, sovkhoz workers, agricultural specialists, the leaders of all links, party and social organizations and all workers in the APK of the ESSR. But to a significant degree, the conditions for this work were created through the consistent implementation by the party and state of those measures foreseen in the USSR Food Program. As an example, in 1982, there were 60 enterprises in the republic operating at a loss or unprofitably and having total losses of R5 million. Last year, they had profits of R49 million. Half of this sum was attained through surcharged on the purchase prices for output as established in accordance with the decisions of the May (1982) CPSU Central Committee Plenum. And this means that the enterprises could allocate funds not only to develop production but also to solve vital social problems in consolidating and improving the living and working conditions of personnel, which at times are lacking in our villages. And the list of examples of this kind can be multiplied. Every year, there are larger capital investments in agriculture and in the sectors that serve it. It is sufficient to say that enterprises received almost R5 million more for these purposes last year than the average allocation during the years of the 10th 5-Year Plan.

And there is no doubt about the positive influence of the creation of the ESSR Agroindustrial Association as a unified administrative and coordinating center for the entire APK of the republic.

And nevertheless, despite all of the work that has already been done to implement fully the decisions of the May (1982) CPSU Central Committee Plenum and to reach the limits outlined by the Food Program, very important and complicated tasks remain to be solved. For it is not just a matter of an organizational or technological restructuring but of a psychological reorganization, of having economic thinking be the basis of any decision. The need for this was especially emphasized at the All-Union Economic Conference on APK Problems.

Everyone, for example, knows how our fields suffered from drought last year, but at the same time, almost half of the irrigation systems on the farms were idle. Can this be considered an example of economic thinking? Hardly.

Raising the wage rate is an essential matter. But there is an objective law whereby one cannot consume more than is produced. But at the sovkhozes of the ESSR Agroindustrial Association, the wage of a worker employed in agricultural production increased 11.2 percent in 1983 compared to the average level for the years 1980 through 1982 at the same time that labor productivity increased by only 8 percent. This also shows that there is only a weak correlation between economic incentives and a reduction in production costs and an increase in the volume of production.

As is known, one of the ways to link these elements more closely is to introduce the collective contract and cost-accounting relations within the farms and enterprises. The introduction of such relations in the republic's agriculture, however, is still far from being as we would like it to be. And yet we have good examples of what the transition to cost accounting provides. In Khargla Department of "Takhe" Sovkhoz, for example, they received profit 74 percent above the plan through the skillful application of the collective contract and cost accounting. The production cost of all types of output in this department was lower than the farm average. Naturally, the collective contract and cost accounting mean extra work for economists and accountants, but their labor easily pays for itself.

There are large reserves for increasing the intensiveness of our APK in the accelerated development of the so-called backward farms. I already spoke of the effectiveness of those measures that were adopted by the party and government to help these farms. Last year, their rate of growth of output significantly exceeded the republic average. Nevertheless, the yield of fields here is 20 percent lower than the republic average. To help this category of farms, it is necessary to use the means of the RAPO centralized funds, and they must primarily be directed to accelerating social development.

Last year, a remarkable result was achieved in the republic. The number of agricultural workers ceased to decline. This success must be consolidated and developed, and the main way to do this is precisely by accelerating the social development of rural areas.

Everyone knows that we do not have enough machine operators. Could it be that we are not training enough of them? An analysis shows that this is not the case. In the years 1976 through 1983, more than 20,000 machine operators were trained, including almost 7,000 in vocational and technical schools. The problem is that many of them prefer not to work in the occupation for which they were trained. What is needed is an entire additional complex of measures to improve the living conditions and wage system of machine operators and to normalize their work schedule. More attention must be paid to occupational orientation and to increasing the prestige of rural occupations, including that of machine operators.

It is essential to be more resolute in eliminating the departmental approach and departmental barriers, which have not been completely removed through the creation of the ESSR Agroindustrial Association. To do this, there must be serious changes in the system of planning, financing and assessing the work of various elements of the APK, so that all this were subject not to intermediate indicators but to the final result.

The interrelationships of science and production must be improved, for heretofore the achievements of science, on the one hand, have been put into practice only slowly, and, on the other hand, at times scientists are not involved in resolving vital practical problems.

Much has been done in 2 years, and a number of serious large-scale problems have been solved. But the dialectics of development are in the fact that life is continually providing new tasks. There is no doubt that they will be resolved successfully.

The workers of the APK are now involved in intensive field work. The spring sowing took place in an organized manner and in the proper agrotechnical time frame. The procurement of fodder and the harvest must be carried out at this same high level. It will then be possible to say with assurance that last year's successes will be further consolidated and developed, that by the end of the year the republic will be on the targets of the 5-Year Plan. The goal is to ensure that level foreseen in the decisions of the May (1982) CPSU Central Committee Plenum and the USSR Food Program.

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## AGRO-ECONOMICS AND ORGANIZATION

### RAPO MANAGEMENT, ORGANIZATION EXAMINED

#### Leaders Discuss Effectiveness

Moscow EKONOMICHESKAYA GAZETA in Russian No 27, Jul 84 p 17

[Article by N. Dudorov: "Stories About the First Steps of the RAPO [Rayon Agricultural Industrial Association]" ]

[Text] In the pavilion on "Economics and the Organization of Agricultural Production" an exhibition has been prepared that is devoted to the activities of a number of rayon agro-industrial associations from various republics. In particular, extensively represented are the Bershadskoye Rayon Agro-Industrial Association of Vinnitsa Oblast, the Pyarnuskoye RAPO in Estonia, the Petrovskoye RAPO of Stavropol Kray, the Kobuletskoye RAPO of Adzhar ASSR and others.

On the initiative of USSR Minsel'khos [Ministry of Agriculture] and the management of the exhibition a "round table" meeting was held here recently in which workers of the aforementioned RAPOs participated. They exchanged experiences, shared their successes and made a number of proposals on further improving economic relations of kolkhozes and sovkhoses with other APK [Agro-Industrial Complex] enterprises and organizations.

All of those speaking at the meeting emphasized that great possibilities have developed within agro-industrial associations with regard to increasing the effectiveness of agricultural production.

"After the development of the new management organs," said the chairman of soviet of the Bershadskoye RAPO, N. Ulich, "all of the members of the agro-industrial complex began to work more harmoniously and better. And although last year was by far not among the most favorable, the average yield of grain was 38.7 quintals per hectare, including 44 quintals of winter wheat per hectare. The total profitability of production equals 46.7 percent."

Thanks to RAPO organizations great possibilities have appeared here to concentrate efforts in order to solve social problems, particularly with regard to organizing public services and amenities. The creation of the required cultural-personal conditions for residents can solve the cadres problem, including in livestock raising, which young people move into with reluctance.



The chairman of the Kolkhoz imeni Dimitrov of the same rayon, A. Pavlichenko, spoke with interest about the interrelations of enterprises and service organizations.

"Now it has become significantly easier for us to work. For example, there have been significant improvements in shipment services to the kolkhozes on the part of Sel'khoztekhnika [Agricultural Equipment Association]. However, its services by far do not fully meet the needs of the kolkhoz and are sometimes very expensive. In other words, in this direction the association's soviet still has a considerable amount of work to do in order to turn all cooperating enterprises toward supporting the interests of the enterprise."

The deputy of the Petrovskoye RAPO soviet, A. Klimova, dedicated her speech at the meeting to questions of organizing the procurement of field and farm products. She related that an inter-departmental commission on the procurement of agricultural products was created in the rayon and has done extensive work to organize the local reception of milk. First and foremost approach roads were provided for this. Sel'khoztekhnika installed refrigerated equipment in enterprises and the milk combine equipped all laboratories on determining milk quality with the necessary reagents and materials. As a result of this, 90 percent of milk sold now belongs to the first-class category, and 70 percent is received in a refrigerated state. Last year enterprises received over 500,000 rubles supplementarily for their high quality milk.

The Pyarnuskoye Rayon Agro-Industrial Association was created several years ago. Today we can speak with complete justification about the effectiveness of its operations. The first secretary of the Pyarnuskiy Rayon party committee, V. Udam, presented indicators on the effectiveness of agriculture in the rayon prior to and following the development of the RAPO.

Of course, the growth of production depends on a whole series of factors, noted Comrade Udam, but a considerable role in this was played by closer ties between the enterprise and service enterprises and organizations and by increasing their responsibility.

The chairman of the Kobuletskoye RAPO soviet, A. Gogolishvili, discussed the work experiences of this association. He discussed in detail the achievements of enterprises in production output. For example, the productivity of citrus crops doubled during the years following the creation of the association.

At the same time at the meeting mention was made of a whole series of negative aspects of the activities of rayon agro-industrial associations. In particular, it was noted that they have not yet fully restructured their style of work and sometimes do not utilize all of their rights in regard to the partners of kolkhozes and sovkhozes. In a number of instances some organizations do not participate in the development of centralized RAPO funds. All of this demonstrates that the new administrative organs must more persistently seek out new ways to improve interrelations among participants in the agro-industrial complex.

## Production Section Functions Detailed

Moscow EKONOMICHESKAYA GAZETA in Russian No 28, Jul 84 p 15

[Article citing parts of the model proposal on the production section of agricultural management of the rayon executive committee and operations apparatus of the RAPO soviet, which was confirmed by the scientific-technical soviet of the USSR Ministry of Agriculture: "Production Management"]

[Text] The production section organizes the fulfillment of the main agricultural managerial tasks of the rayon executive committee, namely: a further increase in production output of farming and livestock products, improvements in their quality and the fulfillment of state plans for the sale of agricultural products to kolkhozes, sovkhoses and other agricultural enterprises belonging to the RAPO; a highly efficient use of land and increasing its fertility; the development of a stable feed base for livestock raising; the steadfast growth in the productivity of livestock and poultry and the overall improvement in the use of its production-technical potential.

The section fulfills its work in close cooperation with other structural subsections of the agricultural management of the rayon executive committee.

The production section secures the preservation and the avoidance of losses of agricultural products at all stages of its technological production cycle.

It organizes the carrying out of work related to land-tenure regulations of kolkhozes, sovkhoses and other agricultural enterprises belonging to the RAPO and controls the implementation of plans and schemes for land-tenure regulations.

It participates in the selection of land for the building of village settlement points and agricultural complexes and enterprises as well as in the redistribution of lands among agricultural enterprises and in the preparation of conclusions and proposals on issuance of acreage for certain uses.

Together with the section on inter-branch ties and planning it examines the draft of a joint plan of agro-chemical servicing of the rayon's agriculture (in the enterprises and organizations of Sel'khozkhimiya [Agricultural Chemical Association]); measures on the highly effective use of irrigated and drained lands and on achieving large and stable harvests of agricultural crops on them.

It elaborates proposals on draft plans for water use and measures to secure the effective use of water by enterprises-water consumers for irrigation. It determines the volume and order in which work will be completed to clean and repair the water management reclamation network and structures in accordance with need and the availability of production capacities of operating organizations on the basis of orders by kolkhozes, sovkhoses and other agricultural enterprises.

Together with the section of inter-branch ties and planning it examines drafts of plans for water management construction in kolkhozes, sovkhozes and other agricultural enterprises and organizations in the rayon.

Together with other sections on agricultural management in the rayon executive committee and with enterprises and organizations belonging to the RAPO the production section works out long-range plans for specialization and the distribution of agricultural production, and it also participates in the elaboration of plans to develop enterprises that will receive, store and process agricultural products.

It participates in the preparation of proposals on the organization of production-management activities in enterprises belonging to the agro-industrial association.

The section has the right: to provide clarifications and recommendations in the established order to kolkhozes, sovkhozes, enterprises and organizations belonging to the agro-industrial association on questions related to the scope of the section; and to participate in the work of committees that are created within the agricultural management sections of the rayon executive committee.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### ADVANTAGES OF NEW STARTER MOTOR FOR AGRICULTURAL MACHINES

#### Development of Starter Motor

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 11 Mar 84 p 2

/Article by A. Anokhin, chief engineer at a plant for starter motors, Gomel:  
"Start-Up At a Crossroads"/

/Text/ Despite the fact that it is not very large, a starter motor is nevertheless expensive. It is expensive in the direct sense of the word: today in the national economy almost each type of engine requires its own starter motor. This is not a thrifty arrangement. The expenditures for the production, repair and servicing of equipment can be reduced through the use of an all-purpose unit.

This idea is both alluring and realistic. But it is recognized that at first many plant workers were skeptical: they wished to know if such a development would be suitable for all. The Minsk motor builders threw oil on the flames: they required a starter motor which would be considerably lighter and, even more important, more compact than the present ones.

And thus an all-purpose unit was developed following extensive research. At the present time, the testing of this unit is nearing completion at a plant. The new model will be used with all types of engines. It is two times lighter and more compact than the old model and it is by no means inferior to it in terms of reliability. And this is a most important requirement: an engine is not an engine in the absence of a reliable starter motor. It is impossible to move a heavy machine somewhere to a quarry, especially during the winter, if suddenly the starter motor breaks down. But I am confident that the new unit will not break down. Generally speaking, there have been no complaints concerning the quality of our new product and the Gomel Plant for Starter Motors is the largest supplier in the country.

It was hoped that the new model would prove its worth rapidly and be mastered without a hitch. Unfortunately however, a number of problems arose during the introduction of this motor for all motors. Our chief problem today is that of coordination. And it is most offensive when the spoke is being placed in the wheel by those who should be assisting technical progress as much as possible.

Thus it was that a black cat ran across the path separating ourselves from the Kharkov leading SKB /Special Design Bureau/ for motors. And now it is not at all possible to reach agreement with the branch technical staff. At one time we sensed that the leading institute was too busy to concern itself with the

starter motor. Thus it was that we undertook, at our own risk, to independently carry through on the idea. And now, with the all-purpose starter motor practically ready, the Kharkov workers it seems have taken offense: they maintain that the production workers are wiser and can manage without our assistance.

There can be no disputing the fact that a special design bureau has more opportunities for carrying out comprehensive studies and comparing new innovations against the best models. But if the developers fall behind rapidly, should not one defend his priorities and furnish rapid and business-like assistance in placing in series production a compact and all-purpose motor?

The motor builders and machine operators are awaiting the arrival of the new starter motor. It will save the national economy thousands of tons of metal and it will lower expenditures for the repair and servicing of equipment. Taking into account its importance, the plant's workers have resolved to include in the socialist obligations for the fourth year of the five-year plan an item on the carrying out of field tests and preparations for series production. This is a noble impulse and one which should not be discouraged.

#### Follow-up Commentary

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 25 May 84 p 2

[Commentary on above article: "Start-Up At a Crossroads"]

[Text] "The Soyuztraktorodvigatel' VPO has examined the article by A. Anokhin entitled "Start-Up At a Crossroads," published in the 11 March 1984 issue of the newspaper SOTSIALISTICHESKAYA INDUSTRIYA" reads the official response signed by the chief of the Soyuztraktorodvigatel' VPO N. Yakubchik. Important questions are raised in the article with regard to equipping the combine and tractor engines with reliable starter motors, which are characterized by low metal-intensiveness and which make it possible to start up the diesel engines at low temperatures and at the same time ensure a high degree of standardization for the various diesel engine models.

The miniature starter motor with a 12 horsepower rating, developed by the Gomel Starter Motor Plant and NIKTID /Nauchno-issledovatel'skiy konstruktorskiy tekhnologicheskii institut traktornykh i kombaynovykh dvigateley; Scientific-Research Design-Technological Institute of Tractor and Combine Engines/ will replace the starter motors being produced at the present time.

Taking into account the progressive solutions embodied in the new unit, the Soyuztraktorodvigatel' BPO has issued an order setting forth the schedules for finishing off the unit and for carrying out the testing and technological preparations for the production and formation of the capabilities for producing these motors. Specific tasks have been assigned to the GSKB /State Special Design Office/ for motors having an average power rating (city of Kharkov) and to NIKTID and the motor plants for carrying out joint work with the Gomel Plant for Starter Motors. Prior to placing the miniature starter motor in production, it will be necessary first of all to solve a number of problems associated with raising its reliability, increasing its power rating, improving its design and also modifying its installation in diesel engines. Following the completion of testing, a final decision will be made regarding its assignment to production.

## AGRICULTURAL EQUIPMENT AND MACHINERY

### DEPUTY MINISTER ON 'DON' COMBINE PRODUCTION PROJECT

Moscow IZVESTIYA in Russian 18 May 84 p 2

[Interview with Yu.A. Peskov, deputy minister of tractor and agricultural machinebuilding and general director of the Rostsel'mash Production Association, by IZVESTIYA special correspondents G. Gubanov and Ye. Spiridonov, Rostov-on-Don; under the rubric: "The Don Program--Under IZVESTIYA Supervision": "They Await the Combine in the Field"]

[Text] The decision was made 2 years ago to set up production of a series of highly efficient Don combines and other grain harvesting equipment making it possible to harvest the crop more rapidly and cut losses to a minimum. IZVESTIYA has already written about how the development of the designs for the machines, their testing, the reconstruction of Rostsel'mash and preparation of the technology for series production of the combines are proceeding.

In a talk with correspondents, Yu.A. Peskov, deputy minister of tractor and agricultural machine building and general director of the Rostsel'mash Production Association, tells how the Don program is being implemented and about the difficulties being encountered on the combines' path to series production.

[Question] Yuriy Aleksandrovich, since great hopes are pinned on the new grain-harvesting equipment, could you tell us specifically what qualities of the new machines are being used for calculating their economic effectiveness?

[Answer] These machines, which we have been testing for 3 years, surpass the Niva in output by almost 2-fold. This will make it possible to cut the harvesting time and reduce biological losses of the crop. Production losses and crushing of the grain will also be reduced by 2-fold for the Don combines below the level of other Soviet and foreign combines.

If the entire combine pool were replaced with Dons the nation would obtain an additional 10-20 million tons of grain annually just because of these superior features. We are developing not a mono- but a poly-combine, however. That is, the Dons can be adapted by means of various attachments for harvesting not only wheat and barley, but all types of grain, oil-bearing and industrial crops. Last year, for example, when our machines were tested on the farms, they did a fairly good job of harvesting corn, sunflower seeds, soybeans, sorghum and castor beans.

We need also to bear in mind the fact that the new grain harvesting equipment will help to resolve social problems in the rural area as well. Fewer combine operators will be needed, the prestige of the machine-operator's profession will increase, competent young people will willingly take over the controls of the Dons, and this will contribute to the retention of cadres in the rural area.

This is an extremely important task. A meeting of the Politburo of the CPSU Central Committee and the USSR Council of Ministers recently discussed how the work of setting up production of the new grain harvesting equipment was proceeding.

[Question] When you name the superior features of the Dons, you use the rated indices listed in the technical specifications for the machines. The agricultural workers, however, are now interested in the performance figures for the combines. The machine operators whom we have met generally have a good opinion of the machines, but they are alarmed about their low output per shift: They are still not producing the rated 10.5 tons of grain per hour due to frequent breakdowns of the engine, the thresher and the hydraulic system.

[Answer] That is true. We have still not achieved the required operational reliability factor. We shall do everything possible to reach the rated level for this indicator this year, however. Improvements suggested by a working group of the state commission and by the machine operators have been incorporated into the design of 30 experimental combines which we are readying for technical agricultural testing on the farms this year. We are not waiting for the next lot of machines to leave for the field, but are "running" the main assemblies and parts and the more vulnerable ones round-the-clock on test benches in order to obtain advance information on the structural reliability. The high level of the technology used for their series production will also ensure the reliability of the Dons.

[Question] The Sel'khoztekhnika specialists point out as one shortcoming of the new combines their labor-consuming technical maintenance, which was revealed when the machines were tested for repair suitability.

[Answer] When we develop the new equipment we should unquestionably make the objective its trouble-free operation and not its predisposition for repairs. Since no production facility can guarantee that its product will not break down in the process of operating it, however, the designer must develop a machine which can be conveniently repaired. The amount of labor involved in the repair operations will depend not only upon the level of the machine's layout, however, but also upon the progressiveness of the technology on which Sel'khoztekhnika designs its servicing bases. Today they tell us that a certain part cannot be dismantled. But what kind of tools does the repairman have for dismantling it? A chisel and a hammer? When we set our requirements with respect to the repair suitability of new combines we need to orient ourselves not toward the primitive tools and devices which are frequently used for doctoring the Niva, but toward the development of special gear, and convert to plant-type repair technology.

[Question] This probably does not mean, however, that the Rostsel'mash people are little concerned about whether proper operating conditions will be provided for the Dons, does it?

[Answer] A decision has been made to prepare the kolkhozes, sovkhozes and Sel'khoztekhnika associations to make highly efficient use of the new grain combines. We are taking an active part in its implementation. In Rostsel'mash itself and at our support bases, which are scattered throughout the nation, we are training the machine operators to operate the new equipment. We are simultaneously setting up repair shops, which will perform the centralized repair of the combines for regions. When series production of the machines is begun we shall begin building up standard stocks of spare parts and tools at the repair sites.

[Question] We know that the Rostsel'mash workers are not perfecting the new combine alone. The USSR State Committee for Science and Technology has adopted a special, comprehensive scientific and technical program, which has involved the institutes in the development of the combines and the preparation of their series production. Is the "tugboat" of science having a perceptible effect, however?

[Answer] In order to raise the society's production forces to a qualitatively new level we have to accelerate the introduction of scientific and technological achievements into production. The comprehensive program adopted by the State Committee for Science and Technology--to help with the development of a grain combine superior to the best Soviet and foreign models--is also serving that purpose. It has been 3 months since the program was adopted, but we already have some interesting and promising recommendations from the scientists with respect to improving both the combine itself and the technology for its series production.

[Question] The agricultural workers also complain about the weight of the new combines. The Don-1500, for example, weighs almost 2 tons more than indicated in the technical specifications. Will the collaboration with science help the Don "to lose weight"?

[Answer] The machine has to be made lighter, of course, in order to reduce the equipment's pressure on the soil. We are resolving this problem with the help of science. The Machine Science Institute of the USSR Academy of Sciences has proposed a unique system for studying the combine's vibration effects and structural stress. Studies which have been performed have indicated ways to enhance the combine's reliability while simultaneously reducing its weight. As a result the new combines, although heavier than the Niva, are already exerting less pressure on the soil. This is a fact. The effort to reduce the weight of the machines continues, however.

[Question] We know that the Rostsel'mash team has to create a Soviet combine using Soviet equipment, assembly parts and materials. What kind of problems is this creating for your subcontractors, and how are they being resolved?

[Answer] When we took on the task of developing the new grain harvesting equipment, we were clearly aware of the fact that an enormous amount of reconstruction would have to be performed for its production. This applies not only to the enterprises in our association, but to all those technologically linked with us. Plants are now rising up in place of the old Rostsel'mash, whose technological level is not below that of the Volga Motor Vehicle Plant or the Kama Motor Vehicle Plant. Suffice it to say that 600 automatic lines, robotized complexes and rapidly readjustable systems will be set up in the shops.



If the subcontractors were already manufacturing the technical means we need for series production of the combines, of course, there would perhaps be no problems. The fact is, however, that they have had to develop most of the equipment and the assembly materials for the first time and to set up new capacities for producing them.

We need to give proper credit to our subcontractors, most of whom have begun actively filling Rostsel'mash orders, and there are no acute disagreements with them when it becomes necessary to make changes in the finished designs because of improvements in the combine designs. After overcoming difficulties in the development of the equipment and the components, however, we encountered the problem of their delivery. Most of the automatic lines of composite machine tools arrive from plants of the Ministry of the Machine Tool and Tool Building Industry and the Ministry of the Electrical Equipment Industry irregularly, for example. The suppliers are supposed to provide the equipment in complete sets and prepare it for operating, however. At the present time, since the ministries are not regulating deliveries, we frequently receive what we could do without for the time being but lack assemblies without which it is impossible to put the lines together.

[Question] Yes, on the Rostsel'mash sidings we see trainloads of equipment which cannot be unloaded because foundations are not ready for its installation and there are no vacant areas even for its temporary storage. Did the association leaders foresee this turn of events?

[Answer] In order to rapidly master production of the new grain harvesting equipment, the Rostsel'mash team decided to work in three directions at once: to design the combines, to prepare the technology for their series production, compile the technical documentation and place orders for the equipment and assembly parts, and build the new facilities. To give you an idea of the scale and the complexity of this management operation let me say that it is necessary to increase two thirds of the capacities to handle a production volume of a billion items. Reconstruction has to be carried out at an enterprise with a current assignment for the production of 96,000 series combines annually, to improve the Niva and Kolos combines and to design a combine with a handling capacity of 10-12 kilograms of grain per second.

Since we do not have a single meter of spare area (the enterprises are located within the city limits), we would be installing the equipment "from the rails." A train would enter a shop, and the machine tools would be placed onto the foundations straight off the train. It would seem that everything is now ready for performing this kind of operation. Most of the buildings have been roofed, the sidings have been laid, and the cranes have been set up. Most of the production operations have already been manned, and the equipment has begun arriving. To have somewhere to put it, however, the builders have to strictly adhere to the schedules for preparing the foundations for installing it. They have fallen behind, however.

[Question] They have their own problems, though. They first prepared the capacities for producing one combine and then two.

[Answer] Yes, in the beginning it was planned to produce only the Don-1500 combine. In the process of testing the machines, however, it was found that a second combine with a smaller capacity was needed for areas with lower yields. And it was decided to set up Rostsel'mash for producing 35,000 Don-1500s and 40,000 Don-1200s. The builders' work increased substantially. We therefore had to order additional equipment and adjust the orders as we went along.

When we objectively assess the present construction situation, we have to frankly say that we have fallen seriously behind the target dates for start-up of the facilities at all three Rostsel'mash sites--Rostov-on-Don, Taganrog and Belaya Kalitva. And this is mainly because the decision binding the construction ministries to treat the Rostsel'mash facilities as a project of special state importance and give them priority with respect to the materials has still not been completely fulfilled. But N.V. Goldin and B.V. Bakin, ministers of construction of heavy industry enterprises and of installation and special construction work are aware that our subcontractors are now far short of the mechanisms, metal components and other materials necessary to perform the amount of reconstruction which needs to be accomplished at Rostsel'mash facilities during the remaining one and a half years.

[Question] Yuriy Aleksandrovich, what kind of help can the Rostsel'mash team receive from the mass media?

[Answer] The nation awaits the Dons. It is not just an economic task, but a political one as well, to place them into production as rapidly as possible. A conclusion should be drawn from this. Rostsel'mash has long had a system of ideological support for preparing production. Every worker knows his task in the program implementation and what the Dons mean to the nation. This sort of clear understanding of the significance of the job in which they are involved should be achieved in all the teams and the leading workers involved in setting up series production of the new combines. We know that around 600 enterprises of 30 ministries and departments, and more than 60 institutes are working on the Don program. We Rostsel'mash workers have the chief responsibility for reconstructing the plant and producing the new machines, of course. If the press were to assume supervision over the fulfillment of all these jobs, I can assure you that the journalists would be of invaluable assistance to the project and to the fulfillment of the nation's Food Program.

From the editors: We believe that the machine builders' request will get a response from the press workers of the republics, krais and oblasts where Rostsel'mash's supplier enterprises are located. Newspapers, radio and television can undertake to strictly monitor the filling of orders with respect to timeliness and quality and prompt deliveries, set up posts for correspondents and newspaper contributors at the plants, at the construction sites and in the design offices, organize the exchange of information and make joint, unannounced inspections. Participants in the All-Union Meeting of Journalists now being held in Rostov will also unquestionably be giving heightened attention to these matters. As far as IZVESTIYA is concerned, the editors will continue to give close attention to everything pertaining to the implementation of the Don program--one of the most important national economic programs.

## AGRICULTURAL MACHINERY AND EQUIPMENT

### 'DON' COMBINE PRODUCTION PROBLEMS AIRED

Moscow IZVESTIYA in Russian 10 Feb 84 p 3

[Report by Ye. Spiridonov, IZVESTIYA special correspondent, Moscow; under the rubric: "The Don Program--Under IZVESTIYA Supervision": "The Combine Will be Reliable"]

[Text] The reader has already read about how a new series of grain combines is being developed in the nation on the basis of the Don-1500 and the Don-1200. In the articles "Facing the Don" and "The Path to the Conveyer," which were published in September and October of last year, IZVESTIYA described the designing of the new grain harvesting equipment and its preparation for mass production.

Work on the production of the Don combine series and other grain-harvesting equipment was recently discussed by the Politburo of the CPSU Central Committee. The USSR Council of Ministers is going to have to make a detailed study of information on this matter and take additional steps to assure the timely accomplishment of this important task, which is of prime significance for building a solid materials and equipment base for fulfilling the Food Program. It is important to step up the pace and expand the construction of new capacities and to push the development and delivery of the necessary production equipment, assembly parts and modern materials.

With the help of science the Rostsel'mash team will bring the combines into conformity with their rated parameters and master series production of the machines. The role of science in supporting production of the highly efficient grain harvesting equipment is defined in a special, comprehensive scientific and technical program just approved by the USSR State Committee for Science and Technology. This report tells about what the scientists must do in order for the farms to receive reliable equipment by the target dates.

Sixty-two experimental Dons have undergone testing on the fields of the Kuban, the central oblasts, Siberia and Kazakhstan and at machine testing stations in

in the nation's main grain producing regions. All of the "pros" and "cons" have been gathered, so to speak. What is the conclusion? After carefully studying the results of the tests and the comments of those who operated the combines, a working group under assignment from the state commission has concluded that there can be no doubt as to the efficiency of the design for the new machines or the technology incorporated in them. The Dons surpass many of the best models of modern grain harvesting equipment with respect to such basic technical and economic indicators as harvesting capacity and thoroughness, threshing quality and working conditions for the machine operators. The operating reliability of the machines is still below the technical specifications, however.

Let us clarify things by saying that we are talking about the parameters of an experimental machine. This is only the prototype of the future combines. The Don is only 3 years old, and the infant is therefore just being taught how to stand firmly on its feet. We know that the best foreign companies spend 5 to 6 years on this. And the Rostsel'mash Association has been assigned the task of achieving the trouble-free operation of the machines at the level of the specifications before they are placed into series production.

We already have combines which measure up to the modern demands of agriculture. This was stated at a meeting of the Collegium of the USSR State Committee for Science and Technology by Academician G.I. Marchuk, committee chairman. We cannot permit the advanced grain harvesting equipment to go into series production with deviations from the design specifications, however. The scientists have therefore taken it upon themselves to provide scientific support for perfecting the future model and developing the technology for mass production of the machines. This means that they are committing themselves not only to help bring the models of the Dons up to the highest technical level, but also to constantly maintain the design parameters of the machines throughout their mass production. And the effectiveness of the scientific servicing throughout the development of the new equipment—from industrial development to series production—must be reflected in the Dons. This is the only correct way to accelerate technological progress in the national economy. The Rostov Oblast party committee and the Ministry of Tractor and Agricultural Machine Building, together with the scientists, have worked out a special, comprehensive scientific and technical program for developing and mastering the production of highly efficient grain harvesting equipment. The idea of preparing such a document received the support of Gosplan and the USSR State Committee for Science and Technology from the very beginning.

What sort of role is assigned to the scientists?

"I was present with some other specialists at the testing of the Dons," K.V. Frolov, director of the Machine Science Institute of the USSR Academy of Sciences. "The design is a good one. The length of the so-called trouble-free operating period is still below standard, however. We believe, and this has been confirmed by measuring a number of parameters, that this is mainly a matter of large vibrational stresses. When they developed the model, the designers could not take into account all of the diverse dynamic stress which the complex system of mechanisms they were designing would undergo. The most refined instruments for entering into the mysteries of machine science are required for developing such complex equipment as the modern grain combine.. Our scientists have acquired

a great deal of experience in this area, and we shall help the designers. The Rostsel'mash team is swamped with routine problems, of course, and we therefore consider it necessary to establish a section or a group in the association, which can work with our specialists to bring the durability factors of the machine up to the required reliability level.

What degree of additional development of the experimental models are we talking about? Will the additional development of the combines not result in significant changes in the machine designs and the technology for their production? This question was asked by A.P. Aleksandrov, president of the USSR Academy of Sciences in the Collegium of the USSR State Committee for Science and Technology.

The specialists answered that they had made a study of the combine's breakdowns and had become convinced of the operational efficiency of the design and technological system for the machines. They therefore felt that it was necessary only to eliminate premature wear on parts and to perfect the machine's kinematics and its balancing and stabilizing systems. The machine's weight has to be reduced, of course. All of these technical decisions amount to the adoption of a technology for making the machines stronger. If a part is made of aluminum alloys instead of iron, for example, this would not only reduce the weight but also increase the new part's resistance to wear. And we have materials which produce just this effect. They should be used in the Dons. This also applies to bearings made of metallofluoroplastics and parts of powdermetals. The use of modern materials in the design of the Dons will reduce the weight of the machines and simultaneously enhance their reliability.

"It is important to achieve trouble-free operation of the new combines not only from the standpoint of their economic effectiveness, but also for social reasons," Academician V.A. Kuybyshev, vice president of the All-Union Academy of Agricultural Sciences imeni V.I. Lenin, stressed. "Today, far from all of the machine operators look forward to taking over the wheel of a Niva or a Kolos. We therefore need to provide agriculture with a grain combine which there is some prestige in operating."

There is no such large-scale grain combine production abroad as that being set up in Rostsel'mash. We are talking about an annual output of 75,000 of the new machines. The active support of related branches and the Academy of Sciences is essential to the Rostsel'mash team for setting up this kind of production operation, of course. Enterprises of 30 ministries and departments and 60 institutes have already become involved in setting up the series production of the Dons.

"It is not an easy matter to improve the reliability of the machines while simultaneously reducing their weight," says A.A. Yezhevskiy, ministry of tractor and agricultural machine building. "Assignments were therefore defined for all the participants in the development and production mastery of the Dons in the special scientific and technical program established by the USSR State Committee for Science and Technology. Its adoption will make it possible to unite their efforts for accomplishing this important task. Subcontractors of the Rostsel'mash team are expected to fulfill their commitments precisely, and science is expected to provide specific recommendations which the team is prepared to apply effectively. It is our common goal to begin series production of the highly efficient grain harvesting equipment in 1986."

The Dons will be made what they are not just by the designers, but by the production engineers as well. This axiom has been confirmed more than once by experience with the introduction of new equipment into various sectors of the national economy. It is therefore very important for Rostsel'mash to receive those modern materials, new equipment and assembly parts called for by the technical design. There is still some confusion about certain deliveries, however, and main deliveries at that. What is causing the snag?

Yu.A. Nikitin, deputy minister of the electrical equipment industry, gave the following reason. It is difficult for Rostsel'mash to produce the automatic welding lines, he says, because the branch enterprises have never before produced such large systems. Ye.F. Vlaskin, deputy minister of the chemical industry, attributed the uncertainty about the delivery of painting lines to a shortage of high-strength enamels. When Ye.V. Spiridonov, first deputy minister of construction, road, and municipal machine building, was asked about the holdup with the development of wrenches for the line assembly of the Dons, he replied that up to now the branch workers have dealt only with percussion tools, but now they have to develop pneumatic and electric wrenches.

One has the feeling that not all of the industry leaders responsible for setting up series production of the Dons have yet come up with the solutions needed for making full and highly effective use of the existing production and scientific and technical capability of the branches.

We are producing many of the things needed for producing the Dons for the first time, to be sure, but so what? Rostsel'mash has been assigned the extraordinary task of providing the nation with a highly efficient combine within a short period of time. And the team has found within itself the strength to overcome inertia, demonstrated initiative and uncompromising principles, and created the needed machine. The same is required of all participants in the Don program.

11499

CSO: 1824/511

## AGRICULTURAL MACHINERY AND EQUIPMENT

### DEVELOPMENT OF DIESEL ENGINES FOR AGRICULTURAL MACHINES

Moscow PRAVDA in Russian 14 Sep 83 p 2 .

/Article by M. Kruglov, doctor of technical sciences and chairman of the Inter-Departmental Council for Internal Combustion Engines: "Diesels for the Rural Areas"

/Text The equipping of agriculture with powerful and highly productive tractors, combines and other self-propelled items of equipment is an important part of the program for carrying out the country's Food Program. Diesel engines constitute the very heart of these machines.

Among the engines installed in tractors and combines, an important place is occupied by diesels designed by the SKBD /Special Design Bureau for Diesel Engines/ of Minsel'khormash /Ministry of Tractor and Agricultural Machine Building/. In connection with the constant increases taking place in the productivity of tractors and combines, the designers attached to the SKBD have been confronted with the urgent problem of creating diesel engines having raised power ratings.

One method for solving this task -- increasing the number of crankshaft revolutions. However, this tends to lower fuel economy and it also brings about a reduction in the durability of an engine. An increase in the engine displacement or number of cylinders tends to raise the metal-intensiveness of an engine. In addition, a requirement develops for new machine tool equipment. Thus the designers and researchers at the SKBD, jointly with scientists attached to the KhIIT /Khar'kov Institute of Railroad Transportation Engineers imeni S.M. Kirov/ and to NATI /State All-Union Scientific Research Institute of Tractors/ elected to use another method. They used gas-turbine supercharging for the very first time in the engines for agricultural machines.

The essence of gas-turbine supercharging consists of increasing the flow of air and fuel, that is, making more efficient use of the working volume of a cylinder. It is achieved through the compression of air in a compressor driven by a gas-turbine. Towards this end a turbo-compressor is installed in the engine, the turbine of which operates on the basis of exhaust gases. In addition to increasing the power rating, a reduction is also achieved here in specific fuel consumption.

Miniature turbo-compressors were developed jointly with a laboratory of NATI and ChTZ /Chelyabinsk Tractor Plant/ and their mass production was organized at

the first specialized plant for turbo-compressors in our country, in the city of Dergachi (Kharkov Oblast), by Minsel'khoz mash.

The mass production of SMD18K diesel engines with gas-turbine superchargers and thereafter SMD17K's, which ensure an increase of 25 percent in the unit power rating and a reduction of 20 percent in specific metal-intensiveness compared to non-supercharger models, with practically complete standardization, was started by the Serp I Molot Plant with no breakdown in existing production or technology. In this manner the appearance on our country's fields of highly productive self-propelled combines was ensured.

The production of SMD17K and SMD18K diesels released the country from having to lay out funds for the construction of new departments or for costly equipment. These engines were certified as belonging to a high category of quality and are being exported to 20 countries.

The increase in the power ratings and technical level of the engines, as a result of the use of gas-turbine superchargers, has turned out to be very promising and has opened up great opportunities. The SMD19 and SMD20 diesels were created and turned over for mass production operations and this made it possible to modernize the grain harvesting combines. The SMD23 diesel was developed for installation in the highly productive combines of the "Don" family. One feature of these engines was the fact that for the very first time diesels of this class were equipped with air cooling systems following the compressor, in combination with an increase in supercharger pressure. As a result, a great effect was realized -- the power rating of the SMD19 and SMD20 was raised by 70 percent and the SMD23 diesel -- by 100 percent. In addition, the specific fuel consumption was lowered by 5 percent, with no adverse effects with regard to either reliability or durability.

Having accumulated experience in the use of a gas-turbine supercharger, the SKBD collective, in collaboration with NATI and KHIIT scientists, created the new SMD62 V-engine with a power rating of 170 horsepower (125 kilowatts) for use in powerful high-speed agricultural tractors, in which for the very first time in our country the turbo-supercharger system became an indispensable part of the design work. The SMD62 engines are also being installed in the Kolos grain harvesting combines.

The designs for this family of diesels are protected by dozens of patents and are being exported to 30 countries.

The high level of fuel economy of the SMD62 engine has been confirmed by certified testing carried out at the University of Nebraska (U.S.A.), where this engine was considered to be more economical compared to the best American and European diesels of the same type. It has been awarded the State Badge of Quality.

The carrying out of the country's Food Program requires a further increase in the power ratings for tractors and combines used for harvesting feed. The collective of Kharkov engine builders made a contribution to this important work -- organization of the series production of the SMD72 diesel with a raised supercharger pressure, intermediate air cooling and a power rating of 200



horsepower (150 kilowatts) for the domestic KSK-100 self-propelled feed harvesting combine and the T-150 caterpillar tractor.

More than one half of the country's grain is being harvested by combines and tractors powered by SMD type diesel engines. The economic effect for the national economy from the development and introduction of tractor and combine diesel engines with gas-turbine supercharging exceeds 600 million rubles. In addition, large savings have been realized in the use of both metal and liquid fuel.

It can be stated with confidence that this creative collective has fully earned the right to compete for the USSR State Prize.

7026

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## TILLING AND CROPPING TECHNOLOGY

### COMBATTING COLORADO POTATO BEETLE

Moscow SEL'SKAYA ZHIZN' in Russian 27 Nov 83 p 2

[Article by V. Yelufimov: "Once Again Concerning the Striped One"]

[Text] What farmer can remain indifferent in a conversation about the Colorado potato beetle? The damage this "striped outlaw" does is so great that its mention alone brings forth by no means positive emotions. Because of the voracious beetle the country underproduces millions of tons of potatoes. This is why the publication of, "How to Tame the Striped One," brought such a response. The editors received hundreds of letters in which readers continued with interest the discussion on protecting crops from the Colorado potato beetle, a conversation that began in the newspaper on 21 August 1983.

As the mail to the editors attests, in most regions the dangerous quarantined pest lives rather freely. Readers give many examples of this. But we will not discuss them. The editors have dedicated, in addition to a survey, a number of materials for an analysis of the existing situation, which has been unanimously evaluated as negative. The correctness of the criticism, incidentally, is confirmed in all official responses by ministries and departments examining it, without exception. Now we can discuss something else—what measures do these ministries and departments plan to take in order to create a dependable barrier to the quarantined pest? This is the way the newspaper's readers formulate the question.

From year to year potato farmers experience a shortage of means to protect plants from the Colorado potato beetle—there is a shortage of chemical and biological preparations and few sprays can be found for sale. According to the words of the director of the Main Administration on Trade in Household Articles of Tsentrosoyuz [Central Union of Consumers' Societies], Yu. Lobov, consumer demand for sprayers is satisfied by only two thirds. Moreover, the quality of the apparatus gives rise to numerous complaints on the part of purchasers. There is nothing surprising in this—their production is spread out among various ministries for which the manufacture of sprayers is a matter of secondary importance. Not a single ministry responded to our publication.

What types of preparations will be available to potato farmers next year to combat the Colorado potato beetle? Some have already had the opportunity to evaluate the properties of bitoxibacillin this summer—the Berdskiy Chemical

Plant has begun to supply it in retail trade. As reported by the deputy director of the Main Administration of the Microbiological Industry of the USSR Council of Ministers, Yu. Kalinin, in 1984 it is planned to produce no fewer than 100 tons of this effective preparation in small packages. The industrial production of another biopreparation, boverin, has unfortunately been delayed until the last year of the five-year plan.

More abundant promises were made by the director of the All-Union Association of the Industry of Chemical Means for Plant Protection, M. Bakirov. It was clear from a response signed by him to our newspaper article that next year the association [Soyuzkhimzashchita] will completely fill the orders of USSR Mintorg [Ministry of Trade] and Tsentrosoyuz for...chlorophos. This communication will hardly gladden vegetable farmers. "Until when," asks V. Nikonov of Tula Oblast, "will the chemical industry flood markets with low-effectivity chlorophos, which the USSR Minzdrav [Ministry of Health] persistently recommends be excluded from the list of means that can be sold to the population?" Chlorophos was to be replaced by dilor, which has been widely recommended in print. It was planned to begin its production at the end of the last five-year plan, but still has not been done. "This year test batches of insectophoxim and benzophosphate are being produced," writes M. Bakirov, "and sales results will determine the volume of their industrial output in 1984-1985." Surprising foresight, isn't it? The production of new preparations, the effectiveness of which has been demonstrated in practice, can be delayed until demand is clarified, whereas the production of chlorophos, which should have been replaced long ago, can remain unchanged. The solution is quite simple--the production of new preparations must be assimilated whereas the conveyor for the production of chlorophos has already been set up. This is why the USSR Ministry of the Chemical Industry and the USSR Ministry for the Production of Mineral Fertilizers constantly hamper plans to develop capacities for the production of the new pesticides.

But even with the shortage of biological and chemical preparations it is possible to more effectively combat the Colorado potato beetle, feel the deputy director of the Administration of Plant Protection of Soyuzsel'khozkhimiya [All-Union Agricultural Chemical Association], V. Poplavskiy, and the deputy director of Soyuzgoskarantina [All-union state quarantine association] of the USSR Agricultural Ministry, M. Shamonin. The USSR MSKh [Agricultural Ministry] conducted a practical seminar on organizing protective measures against the pest as well as meetings of scientists to discuss a plan for scientific research on the struggle with the Colorado potato beetle for 1983-1985. The plan foresees the elaboration of economic levels of its harmfulness in various zones of the country, an improvement in chemical and microbiological methods of combat, the use of natural enemies of the pest of solanaceae and the breeding of varieties resistant to infestation.

The editors also received responses from many oblast executive committees and Sel'khozkhimiya associations describing measures to combat the beetle. Specialists of kolkhozes, sovkhoses and the plant protection service are called upon to strengthen controls over the treatment of potatoes in gardens and to activate educational work among the population.

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## TILLING AND CROPPING TECHNOLOGY

### COMBATTING PESTS, DISEASES IN ORCHARDS, VINEYARDS OF UZBEKISTAN

Tashkent SEL'SKOYE KHOZYAYSTVO UZBEKISTANA in Russian No 2, Feb 84 p 43

[Article by O. Yeremenko, candidate of biological sciences, and S. Tropina, director of the republic's laboratory on diagnoses and prognoses of the Ussel'khozkhimiya [Uzbek Agricultural Chemical Association] RPNO [Rayon scientific production association]: "Prognosis for the Development of Pests and Diseases in Orchards and Vineyards"]

[Text] Disease agents and pests of fruit crops are related in their development to the phenological status of the host plant, which is determined by meteorological conditions and agrotechnical care. Mild winters and warm early springs encourage the preservation of overwintering reserves of fungal infections and various types of pests.

In recent years in the orchards of Uzbekistan there has been a widespread distribution of pests such as scale insects, mites, moths and tortix. Of the diseases those that are most prevalent are powdery mildew, scab and klyasterosporiosis [Translation unknown].

The period of greatest intensity in the development of the primary infection of powdery mildew and klyasterosporiosis depends directly on average daily temperatures, which also determines the speed through which fruit passes through phenophases. The cold weather and rains hinder the development of primary infection. According to long-term biometeorological data, the spread of the klyastesporium fungus infection begins in mid to late February, and in the first half of March in the foothill zone. The first spring infection of buds and sprouts of peaches, apricots and plums occurs after a 2-3 day drizzle with temperatures of 5.9-12.5 degrees.

The manifestations of the first symptoms of infection with powdery mildew can be expected in mid to late April with a relative humidity of 47-77 percent, average daily temperatures of 15-19 degrees and with some dew and light drizzle.

The most favorable conditions for the development of scab are a drawn-out spring with abundant precipitation and rainy days in the first half of summer.

The apple tortrix developed in 1983 in three generations. It inflicts its greatest damage (45-55 percent) in the period of development of the second and third generations. Fall surveys have determined that the caterpillars of apple tortrix began the overwintering period in good physiological condition. If during spring surveys of trap belts left from fall even a single caterpillar is discovered per square meter of stem, then the apple tortrix will be a serious threat in all zones of horticulture. If the inspector did not register this dangerous situation in the spring then after blooming traps must be set out, and if 2-3 males are found then it is essential to take protective measures quickly.

In recent years in the orchards of Uzbekistan there has been a widespread distribution of fruit moths—occupying the lower and upper parts of the plant. Their appearance can be expected in early April, when the atmospheric temperature increases to 13-17 degrees. The first sign of their action is a white film on the upper or lower aspect of the leaf along the central or lateral fiber. Caterpillars feed on the parenchyma of the young leaf and can be seen with a passing light. If one moth is found per leaf it is essential to take measures.

A dry summer and a drawn-out warm spring had a positive effect on the formation of an overwintering reserve of the brown fruit mite. It announces itself with the appearance of small white spots which later turn brown. In the early stages of infection there is no web on the leaf or it is almost imperceptible. Treatment should begin when there are 3-5 mites per leaf.

Last year in vineyards the most widespread pests were leaf rollers and grape mealy bug and the widespread diseases—anthracnose, oidium and mildew. Weather conditions in the fall favored the accumulation of infections and overwintering specimens. In connection with this in the presence of optimal conditions in the current year we can expect a more intensive multiplication of pests and diseases in vineyards.

Oidium and anthracnose, if not combatted in time, can kill 40-60 percent of this year's harvest and sharply curtail the harvests of the next 2-3 years. The development of disease is encouraged by abundant precipitation in May-June, and in some enterprises—overly abundant irrigation.

Citrus fruits, figs and pomegranates were greatly infested last year with the grape mealy worm in Surkhan-Darya, Kashka-Darya and Fergan oblasts. The high temperatures of July and August did not have a negative effect on the biological development of the parasite. A warm, drawn-out fall and mild winter encouraged the good overwintering of the pest. In this year's season with the availability of the optimal conditions a more intensive development of the work is possible in these oblasts.

Accounts of annual and seasonal prognoses on the appearance of diseases and pests in each enterprise have enabled us to decrease expenditures for the protection of plants by 30-35 percent by means of preventative measures.

An increase in the effectiveness of protecting the harvest in orchards and vineyards is facilitated by the introduction of comprehensive protection systems which are built on the basis of prognostication.

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## TILLING AND CROPPING TECHNOLOGY

### COMBATting PLANT PESTS IN BELORUSSIA

Minsk SEL'SKAYA GAZETA in Russian 6 May 84 p 3

[Article by A. Koren'ko, director of the horticulture administration of the BSSR Ministry of the Fruit and Vegetable Industry and V. Bolotnikova, director of the laboratory for the protection of fruit crops of the Belorussian NII [Scientific Research Institute] of Plant Protection: "In Order to Protect Orchards"]

[Text] A great threat to orchards comes from leaf-gnawing pests, especially moths—the winter moth and the mottled umber moth, and of the diseases—. The relatively mild winters of recent years encouraged the good overwintering of the eggs of pests on the branches of the apple tree, and the caterpillars that developed from them began active feeding the moment buds developed. In breeding grounds for the multiplication of moths, at the point at which fruit trees bloom if measures are not taken to protect orchards losses of leaf surface can reach 50-79 percent and more, and during the period of blooming all leaves and blooms can be completely eaten.

In order to successfully protect orchards from moths it is essential to organize the inspection of orchards for infestation with these pests at the moment when bundles are found. On an area of up to 10 hectares 10 trees are examined, on up to 50 hectares—50 trees and up to 100 hectares—30 trees. A count is made of the number of caterpillars on 6-12 branches in the lower part of the crown of each tree being examined; this is followed by a recount. If over 3 caterpillars are found on the average on 2 meters of branches with a predominance of moths or over 4 caterpillars with a predominance of leaf rollers, the area is subject to treatment. The selection of the preparation depends on the actual number of caterpillars and on meteorological conditions. If daily temperatures are over 15 degrees and the number of caterpillars does not exceed 20-24 on the average per 2 meters of branches, it is possible to utilize the biological method of protection—the use of biological preparations stored for no more than 1 year or bitoxibaccilin at a rate of 3-5 kilograms per hectare. In other cases one of the insecticides should be used: ambush (25 percent concentrate emulsion)—1-2 liters per hectare, tsimbush (25 percent k. e. [concentrate emulsion])—0.2-0.3 liters per hectare, phosphamide (40 percent k. e.), carbaphos (50 percent k. e.), metaphos (20 percent k. e.), or chlorophos (80 percent wetting powder) at a rate of 2-3 liters or kilograms per hectare.

If there are outbreaks in the number of leaf-gnawing caterpillars it is very important to carefully treat trees at the moment bundles are uncovered utilizing one of the insecticides mentioned above. Niduses should be kept under constant surveillance, and if after treatment the number of caterpillars surpasses the threshold, treatment should be repeated at the moment of the isolation of bundles, utilizing one of the aforementioned insecticides or biopreparations with the same rate of consumption.

To protect trees from scab one of the following fungicides is added to the insecticide or biopreparations: tsineb (80 percent wetting powder)--4-8 kilograms per hectare, khometsin (80 percent s. p. [Wetting powder])--4-8 kilograms per hectare, kaptan (50 percent s. p.)--4-8 kilograms per hectare or polycarbazine (80 percent s. p.)--4-8 kilograms per hectare.

During the blooming period spraying with pesticides is not done.

Immediately after blooming niduses are examined for the multiplication of leaf rolling pests and if their number exceeds the threshold for economic harmfulness these parts of the orchard are treated with the aforementioned biological preparations or insecticides, keeping in mind the principle of the alternation of pesticides. During the same period spraying against apple scab is done utilizing one of the aforementioned fungicides, combining it when necessary with treatment using insecticides or biological preparations against leaf roller caterpillars. This protects leaves from primary infection. Protective spraying with fungicides during the period of bud formation and immediately after blooming is mandatory and hinders the appearance of the first scab spots by 2-3 weeks as compared with the non-treated control.

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## TILLING AND CROPPING TECHNOLOGY

### COMBATTING THE POTATO MOTH

Krasnodar SEL'SKIYE ZORI in Russian No 4, Apr 84 p 53

[Article by I. Lebedev, agronomist-inspector of the Krasnodar State Inspectorate on Plant Quarantine: "Potato Moth"]

[Text] In the enterprises of the Sea of Azov-Black Sea shoreline in the Caucasus the potato moth has been found--a dangerous quarantined pest of potatoes, tobacco, tomatoes, eggplant, peppers and other crops from the solanaceae family. This must alert not only agricultural specialists, potato farmers and vegetable farmers of kolkhozes and sovkhoses but all individual farmers and all residents of villages, stations and cities as well.

In our time we warned that potatoes, tomatoes and other solanaceae should be carefully inspected. This is especially true for June and August--during this time the harmful action of the moth is manifested most strongly, especially on tubers that are poorly covered by the soil (on them we can find infections brought in by caterpillars).

Potatoes in storage areas as well as the facilities themselves must be examined. As soon as a breeding area for the pest or a suspicion that the potato moth has "been at work" here arises, infected tubers must be sent to the quarantine inspectorate. Inspections should be carried out every 2-3 months.

Let us note that potato tubers hardly become infested with the caterpillars of insects (with the exception of the click beetles). If a caterpillar is found in a tuber we can almost unerringly state that this is the potato moth.

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## FORESTRY AND TIMBER

### FORESTRY MINISTERS INTERVIEWED ON FIRE PREVENTION

#### RSFSR Losses, Preventive Measures

Moscow IZVESTIYA in Russian 4 Apr 84 p 3

/Interview with RSFSR Minister of Forestry A. I. Zverev by A. Illesh:  
"Smoke Over The Taiga"/

/Text/ Only specialists know that the forest fire danger season in the Far East starts by the beginning of April. And later there is always a large "bonfire" there. This is the way it is every year. And in 1976, a bad year, there were 428 fires in the first half of October in Khabarovsk Kray alone. No less than 45,000,000 cubic meters of excellent wood became ashes and charcoal...

What can be done to prevent the tongues of flame from roaming over the taiga expanses and from bringing incalculable loss and human death? Our correspondent talked about this with RSFSR Minister of Forestry A. I. Zverev.

/Question/ Aleksey Il'ich, forecasting is one of the effective methods for combatting the elements. Is the Ministry satisfied with the forecasting which it gets from weather forecasters?

/Answer/ You are right. Organizing the fight against forest fires depends a lot on how much specialists foresee the development of danger both as a whole throughout the republic and by each specific location. Unfortunately we get such a forecast from the meteorological service only for three days and a general forecast for a month. Additionally, the meteorological service gives us a satellite picture in which the cloud system can be seen beautifully. An analysis of their development and distribution also supplements the information for fire danger forecasting. It is evident that the more forward looking the forecast, the better fire fighting forces and equipment can be positioned. The problem is, are these forecasts always exact and are they always justified? It is impossible to positively answer these questions today.

On the other hand, we are trying to expand the sources of information which interest us. For example, we are grateful to scientists from the Agricultural Academy imeni Timiryazev because a special group there is developing forecasts of background natural situations for a year throughout large areas. But I repeat that on the whole we expect a lot from weather forecasters.

/Question/ What do we have in our arsenal of ground equipment today and what are the near-term prospects for outfitting ground forest fire equipment?

/Answer/ Aviation and ground protection services are the most important parts. They are constantly working closely with each other and with other services. Tens of thousands of forest rangers and technicians work for us and there are more than two thousand fire-chemical stations equipped with tank trucks, all-terrain vehicles, fire units and forest fire extinguishers. But no matter how effective the numbers look on paper, there is no doubt that there is not enough equipment for our Russian forests. Therefore at the peak fire danger period oblispolkom and krayispolkoms must draw equipment from other economic enterprises to fight fires. This is natural as it would not be right to retain a huge "army" of fire equipment simply as a reserve. Fires do not always burn everywhere. The problem of fighting forest fires affects many economic spheres and that is why this problem must be resolved together.

The introduction earlier of new patrol vehicles was stipulated by a complex forest protection program. Television mounts for fire detection and amphibious motorized pumps are showing up. We are testing forest patrol launches and have developed a new type of material for constructing defensive belts with explosives and chemicals. But scientist-developers and industry cannot rest on their laurels.

/Question/ I have had to fly with forest patrols in the various ends of the country to see how they dismount into the center of a forest fire. And each time I am convinced that modern aviation is poorly equipped to put out large forest fires. Are there no effective airplanes and helicopters, the so-called "flying tankers?" Are we making any improvements?

/Answer/ Today we are using aviation widely in Siberia, the Far East, Yakutia and in the European north primarily for timely forest fire detection.

The business of putting fires out from the air is more complicated. I will note that in recent years we have used special spray equipment on Mi-8 helicopters more extensively, but this equipment is weak and small. Alas, there are still no airplanes and helicopters with easily removable, handy equipment. And as you correctly noted, there are no amphibious "flying tanker" airplanes.

In the near future the forestry service must get the An-28 which would be handy for us. We are really counting on this new equipment which must replace the veteran An-2.

/Question/ Everyone entering the forest runs into the posters which tell them to be careful. But alas, the "publicity," it seems, is not doing anything. How is explanatory work being organized so that these posters become effective?

/Answer/ I may not agree with you on that. Here is a graphic example. Ah, that infamous 1972. Smoke then was right in the capital center and many Moscow suburb forests were in flames. And what happened? It was primarily the explanatory work by party and soviet workers that sharply reduced trips to the forest at that time and the result was a significant reduction in fires.

Every person must be careful in the forest, and especially in heat and drought. With the advent of high and extraordinary fire danger, local organs of Soviet power can even ban visits to the forest and the taking of vehicles into them altogether. However, such bans would be an empty order which would simply not be followed if they were not reinforced with smart, tactical and therefore effective explanatory work. I agree that there are definite difficulties in this regard, for you cannot close the forest off with a curtain. It is important to reach the point where everyone realizes the importance of our calls and considers that a fire in the forest is his own loss. This applies equally to both individuals and whole organizations. It must be confessed that some managers still have the philisophy that if there is a forest fire, rangers should deal with it. But our common people's property is burning!

/Question/ Every forest fire, unless it was caused by the elements (to which, by the way, many managers happily attribute responsibility) clearly has a guilty party. Investigations are conducted into the results of many fires and they disclose, yes alas, often uncover criminal actions.

Why does this happen? What responsibility must people such as executives, geological or other parties working in the taiga who are guilty of starting fires have? One gets the impression that many of them get off with a light scare.

/Answer/ People guilty of starting forest fires are criminally and administratively responsible. But the fact is that the RSFSR Criminal Code stipulates punishment only if there is substantial damage to forest tracts. And this is the essence of the problem. When criminal matters come up, investigatory agencies interpret the meaning of "substantial damage" and "forest tracts" very liberally. They sometimes consider only the cost of the forest that was burned and the rest of the loss which the economy has suffered is somehow dismissed.

We can only track cases and if the decisions carried out do not satisfy us, we appeal them. But three years ago state forestry protection capabilities in this area were significantly expanded. Now even if there is no criminal charge brought or if it is dropped, the guilty party can be subject to an administrative fine of up to 100 roubles. But frequently the only witness to the crime of arson is the taiga itself and naturally it is huge and silent. And therefore guilty people are not caught very often.

/Question/ And one last question. I have often asked this of representatives of emergency commissions in those regions where fires have raged, and I have yet to hear a "yes" answer. Now I want to ask it of you, Aleksey Il'ich. Is it possible to reach the point where there are no longer any huge forest fires?

/Answer/ That is not a simple question. The start of a forest fire depends on two factors--man's economic activity and natural phenomena, and 85-90 percent of the fires fall into the first category. On the other hand, the more remote forest fires and therefore the ones most difficult to put out are the ones, as a rule, that are started by thunderstorms. They develop in the most unfavorable synoptic conditions and many of them get "out of control" and spread. Statistics confirm that 1-1.2 percent fall into the category of huge fires, but they destroy a large area of the forest. I will note that as a result of reinforcing the forest protection service, the number of such fires is decreasing. However, it is still impossible to guarantee that there will not be any at all.

And yet, whether a fire starts because of nature's actions or man's carelessness, it can and must be managed by man.

#### Fire Protection in Ukraine

Kiev PRAVDA UKRAINY in Russian 25 Apr 84 p 4

[Interview with UkSSR Minister of Forestry V. D. Baytala; by RATAU [Ukrainian News Agency] correspondent, unnamed: "Let the Forests Murmur On"]

/Text/ The alarm at the UkSSR Ministry of Forestry has been ringing as forest fires have become more frequent. At times because of people's careless attitude to forest tracts, fire is destroying significant forest areas. The importance of forests to us and their fate are the issues at hand in an interview of UkSSR Minister of Forestry V. D. Baytala by a Ukrainian News Agency correspondent.

/Question/ Vasiliy Dem'yanovich, everyone knows the importance of forests in our lives. It is even difficult to imagine how we could exist without being close to our green friends.

/Answer/ Without even considering the importance of forests for construction material and raw material for manufacturing various products, it is difficult to over-estimate their value. Forests store, transform, conduct and reflect solar heat. They serve as natural wind barriers and their influence on the natural water cycle is irreplaceable. Forests improve field productivity, protect them from hot, dry winds and dust storms, retard moisture evaporation, fight water erosion and improve the micro-climate. Finally, they are a refuge for many animals, they suppress noises and reduce air pollution.

The role of forests is especially great where forest tracts are not so extensive and our republic falls into that category. Although the Ukraine has ten million hectares of forest cover which is a lot, this is still only one-seventh of its territory. On the average, one-third of the planet's land-mass is covered by forests, but their distribution is extremely irregular. While forests cover from one-third to one-half of Polesye and Carpathia, in the steppes regions where there is intensive agriculture and developed industry, forests cover 2-4 percent of the area.

/Question/ Does this mean that it is equally important not only to safeguard, but also to increase our forest riches?

Party and soviet agencies are constantly worrying about this and forest industry collectives are doing important work. Under Soviet power, more than 5,000,000 hectares of forests in the republic have been established half of which are sapling groves.

The public is substantially helping the expansion of forest tracts and this is not limited to adults. Take school forestry programs. Tens of thousands of young friends of the forest are in this program. School children are putting in nurseries, parks and public gardens, planting trees and shrubs along roads, developing protective forest belts, collecting seeds from trees and bushes and gathering medicinal plants.

As a result of the measures being taken, forests have begun to murmur where earlier only the sands reigned. And yet the problem of forest protection is not lessening, and I would say is becoming even more intense. Weather is its greatest enemy and there have already been dozens of forest fires this year in Volyn, Rovno, Kharkov, Zhitomir and other oblasts and in several places they spread to large areas and caused a lot of damage to forests. For example, several days ago there was a forest fire in Kharkov Oblast which broke out as a result of grass being burned out along a railroad bed for 22 kilometers between the Kupyansk and Slaviansk stations. It completely destroyed 45 hectares of valuable young plantings.

/Question/ What sort of punishment did the guilty parties receive?

/Answer/ People guilty of destroying or damaging forests as a result of arson or careless fire use are legally, administratively or otherwise penalized in accordance with legislation of the Union SSR and our republic. In addition, fines are imposed on them and they must compensate for losses suffered. For example A. Kitayev, a student at Voroshilovgrad PTU /vocational technical school/ No 45, who lit a campfire in the Stanichno-Lugan Forestry Sector of the Peschan forest which led to a forest fire, and also I. Petrichenko, director of the "Kolos" children's sports training base for Kiev Oblast, who was responsible for a fire in the Kiev Forestry Area of the Obukhov forest, had to pay significant monetary fines. By the way, the latter also had to face judicial proceedings.

But any punishment, even the most strict, is only a lesson for the transgressors and a measure of their responsibility. It does not compensate for the loss suffered by the state and society. As a result of fire, those things created by man in ten years are reduced to ashes in hours and even minutes. Even replacing the relatively young plants which are more prone to being destroyed by fire requires almost half a century. And there are other economic consequences.

/Question/ As they say, it is not possible to be insured against everything. It is hardly possible to protect against fires resulting from lighting. All the same, is it not possible to maximize security from disastrous fires?

/Answer/ A thunderstorm is a thunderstorm, but the majority of fires are caused by man's carelessness. With the advent of heat, thousands of people go into the woods to relax. Unfortunately there are many careless and simply irresponsible people among them. One lights a fire in a forbidden area and then forgets to put it out. Another tosses a match or cigarette butt. And at times a spark from a car or tractor falls into the roadside vegetation. And then a fire blazes.

Certainly, a lot depends on those who are called upon to protect the forest. Today thousands of people safeguard the forest's security in the republic. Preserving forest tracts depends a lot on their skillful actions and strict control over observing fire prevention rules. Last year alone forest rangers caught 1,762 violators.

Other measures for safeguarding the forest riches are also effective. Land and airpatrols are organized for timely fire detection. Fire prevention barriers, fire breakes and mineralized belts have been established in the forest to impede the spread of fires and the tree mixture is regulated. There are 175 chemical-fire stations with modern equipment, transportation and radio communications operating in forest area enterprises.

We are grateful to local party and soviet organizations which are actively improving protection of forests and their rational use. The ispolkom of the Council of Peoples Deputies has forbidden the taking of vehicles into forest areas where fire danger is high and they are explaining this and educating the population.

And yet there is still a lot to do. For example, motor vehicles should be forbidden in areas of conifer plantings where the smallest spark could bring disaster. It is necessary to control more strictly the observation of fire prevention rules. It would seem we should give up the practice of calling in forest rangers to other work during times of high fires danger as is done in some places.

In short, what is required is for more people to try not only to use the forest riches, but also to be a real friend to the forests.

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## LAND RECLAMATION AND WATER RESOURCES

### DEPUTY MINISTER DISCUSSES IMPROVED MANAGEMENT OF RECLAIMED LAND

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 11, Nov 83 pp 12-18

[Article by Vladimir Fedorovich Mokhovikov, USSR deputy minister of land reclamation and water resources]

[Text] The speech of Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee, at the joint ceremonial session of the CPSU Central Committee, USSR Supreme Soviet and RSFSR Supreme Soviet on 21 December 1982 noted that "... the further development of our agroindustrial complex--as indeed of the country's economy as a whole--necessitates more thorough and consistent specialization of agriculture on the scale of the entire country." This idea is fundamental both in improving the agroindustrial complex as a whole and also in improving the sectors which make it up.

In recent years the country's agriculture has been developing ever more intensively. Various ministries and departments whose influence on the end result of agricultural production has increased are participating in this process. The question of managing the agroindustrial complex as a unified whole, of the structure of interrelations and of the role of the ministries and departments making it up has become an urgent one. The goals and tasks of the agroindustrial complex defined in the decisions of the 26th party congress and the May, November (1982) and June (1983) Plenums of the CPSU Central Committee are the basis for solving this problem.

Successful fulfillment of the USSR Food Program requires unified planning, proportional and balanced development of the branches of the agroindustrial complex, a substantial bolstering of its physical plant and equipment, and improvement of economic relations: that is, organization of smooth interaction in the growth of production of agricultural products as well as an improvement of their preservation, shipment, processing and forwarding to the consumer.

Adoption of the standard regulations on the rayon and oblast agroindustrial associations, which define their functions, rights and duties, was an important organizational beginning in the performance of those tasks. In conformity with the standard regulations, rayon agroindustrial associations (RAPO's) include operating water management organizations, while the oblast, kray, republic (ASSR) agroindustrial association also includes construction organizations in the field of water management.

The operating water management organizations of the USSR Ministry of Land Reclamation and Water Resources [Minvodkhov], which are components of the associations, are organizing the drafting of measures and together with the farms are performing them so that highly efficient use is made of irrigated and drained land and so that high yields of farm crops are obtained; they are drafting proposals for the drafts of water use plans and submitting them for approval in accordance with procedure, and they are also carrying out measures aimed at efficient use of water by water-user farms. In accordance with the needs and availability of the production capacities and on the basis of requests of kolkhozes, sovkhozes and other agricultural organizations, the operating organizations determine the volume of work to clean and repair the water management network of irrigation and drainage facilities and establish the order in which these projects are to be done. The plan for performance of these projects is subject to approval by the RAPO.

The RAPO also takes under consideration plans for water management construction on kolkhozes, sovkhozes and other agricultural enterprises and organizations in the rayon. On the basis of comprehensive water use and conservation schemes water management projects are chosen for design and construction in the rayon, including technical improvement of existing irrigation and drainage systems, and proposals are submitted to the appropriate higher-level organizations.

Greater intensification of agricultural production is inseparably bound up with land reclamation. The effectiveness of the reclamation measures being carried out in the country is indicated by the fact that over the last 17 years nearly three-fourths of the growth of output of cropping in the socialized sector has been achieved from land that was either irrigated or drained.

Since the May (1966) Plenum of the CPSU Central Committee reclamation in the country has been a major specialized branch of agriculture. The area of land irrigated and drained in the years that have passed has doubled and exceeds 32 million hectares. The country obtains more than one-third of the output of its cropping on that area. Every year more than 7 billion rubles of state capital investments are committed to reclamation. Reclamation projects are being carried out simultaneously on an area of more than 5 million hectares. In the 11th Five-Year Plan subdivisions of the USSR Ministry of Land Reclamation and Water Resources are to put into operation 3.6 million hectares of land irrigated and 3.8 million hectares of land drained with state capital investments, to provide water supply to 27.3 million hectares of pastures in desert, semiarid and mountain areas, and to raise the level of irrigation and drainage systems on an area of more than 5 million hectares.

A system has taken shape for management of that work. It encompasses the functions of the client and the general contractor in water management construction, operation of irrigation and drainage systems, the agricultural use of virgin and long-fallow land brought under cultivation in the uninhabited zone, comprehensive use and conservation of water resources, the production of industrial products used in water management, and designing and scientific research.

Irrigation and drainage operations are managed in accordance with the regional-sectoral principle of management in which the 13 land reclamation and water resources ministries of the union republics, the UzSSR State Committee for Land Reclamation and Water Resources, and 21 regional organizations under union jurisdiction for land reclamation and sovkhoz construction figure as the regional management entities. In all, there are more than 6,000 different organizations operating in the branch.

The principle of full subordination to the interests of agriculture and to making it more efficient has been made the basis of the ministry's activity. In practical terms this is being done by planning irrigation and drainage projects, whose volume is determined as a function of the targets assigned for production of the particular farm product. It is also important that the farms putting the irrigated and drained land under cultivation have been or will be furnished appropriate agricultural equipment and fertilizers and that all the envisaged agrotechnical measures will be conducted in good time on that land. The end result of the work of water management construction organizations is a fully developed sovkhoz with the complex of completed projects for production, utilities, and cultural, consumer and municipal services. In other words, the builders turn over the sovkhoz as a turnkey project to agricultural organizations for permanent operation.

The ministry's principal tasks at the present time are as follows: paying closer attention to use of the stock of reclaimed land and maintaining it in a suitable state so as to increase the yield obtained from it; strengthening the material and technical base of operational water management organizations; performance on schedule of the full range of operational repair work of all kinds and raising the level of engineering supervision of this work. Ultimately all this will help to increase the yield from every hectare of irrigated and drained land.

Thus the program of land reclamation projects is an integral and inseparable part of development of the entire agroindustrial complex. Fulfillment of the plans of the agroindustrial complex depends in turn to a considerable degree on the level of organization and management of water management construction, operation of irrigation and drainage systems, and combined use and conservation of water resources, that is, it depends directly on the main lines of activity of the USSR Ministry of Land Reclamation and Water Resources. The master scheme for management of the specialized branch which has been worked out in the ministry meets these requirements. The principles of subordination of all units doing reclamation work and all levels of its management to the interests of kolkhozes and sovkhozes and the entire agroindustrial complex were set down as the basis of the scheme. The scheme envisages measures aimed at reducing the number of units and increasing the level of concentration and specialization of production, developing progressive forms of cooperation and combination, and at improving the structure of the management apparatus. We consider the following to be the main tasks in this connection, differentiated by types of activity.

Operation of Reclamation Systems. Increasing the reliability of systems and creating the conditions for the most effective use of the land reclaimed,

prevention of its salinification and swampiness; raising the level of mechanization and industrialization of repair-restoration work.

**Capital Construction.** The concentration of capital investments to carry out target programs for the development of plantgrowing, expansion of the area of reclaimed plowland and perennial plantations through development of new land and reconstruction of the existing stock of reclaimed land; creation of irrigation and drainage systems meeting the present-day technical level; increasing the volume of combined construction and creation of specialized farms on the new land brought under cultivation; and development of land mainly in large tracts.

**Combined Use and Conservation of Water Resources.** Effective use of water resources, their optimum distribution and protection against pollution and depletion, interbasin redistribution and storage of water.

**Development of Agriculture on Newly Reclaimed Land in the Uninhabited Zone.** Organization of specialized sovkhozes on such land, strengthening their agrotechnical base and achievement of the rated yield of agricultural crops on the land developed in the shortest time.

In capital construction the transition will be made from a four-five-tier system to a two-three-tier system, and only in certain cases--to a four-tier system, which has to be retained because of the specific peculiarities of water management construction (combining functions in construction and agricultural development of the new land within a single water management organization in the middle or primary tier of management, irrigation of land in large tracts; a substantial number of projects under construction at the same time; the need to carry out reclamation work in every oblast and every rayon). The four-tier system will cover no more than 19 percent of the construction organizations, and that mainly within RSFSR and Uzbekistan. The level of concentration of construction will be increased by increasing the average volume of work done by the single trust or equivalent organization (from 17.4 million to 21.0 million rubles, and for PMK's and SU's [mobile mechanized columns and construction administrations, respectively]--from 1.9 million to 2.5 million rubles). The number of organizations in the basic and middle levels will be reduced. Only trusts and construction-assembly production associations will figure at the basic level, and in certain cases--PMK's and SMU's [construction-installation administrations] if they reach directly to the middle tier of management. Other PMK's and SMU's will become the production units of trusts and associations, but this does not preclude their independence in production operations, since they may be allotted fixed and working capital, they may have a giro account when they are located in another settlement, and may also have a portion of economic incentive funds and the right to hire and discharge workers. Thus it is not a question of eliminating any sort of production units, but of modification and a certain redistribution of management functions.

For example, if a PMK is in the same settlement as the trust or at a close distance from it, the trust may centralize such functions as technical-economic planning, bookkeeping, cost estimation and work on contracts, and material and technical supply.

Complete centralization of production and housekeeping functions is also possible at the level of the trust, as has been done in the association "Prom-zhilstroy" of Glavdagestanvodstroy [Dagestan ASSR Main Administration for Water Management Construction]. This kind of centralization transforms the PMK's into construction sections, and the headquarters of the trust takes over operational management of production. When the PMK is located further away from the trust, the level of centralization must be lower, and in certain cases, if it is detracting from the effectiveness of management, it must be reduced to the minimum.

The following tendencies are observed in specialization. Trusts within main administrations are specializing in types of construction, and PMK's and SMU's within trusts are specializing in types of operations. In republic minvodkhozes and main administrations which have a large volume of work it is recommended that production associations be created with specialized plants and at the enterprises of main administrations which have a small volume of work be subordinated directly to the middle tier of management. Certain small enterprises meeting the needs of just one trust or association would remain in the primary tier. On behalf of better operation of irrigation and drainage systems, it is recommended that every rayon have a unified operating organization; in future such organizations would be created in rayons which have at least 10,000 hectares of reclaimed land. At the present time this recommendation is being carried out as an experiment in the organizations of RSFSR Ministry of Land Reclamation and Water Resources: unified operating organizations are being created as rayon repair-operation production associations for land reclamation and water management.

The master scheme calls for establishing greater order in the network of scientific and project planning organizations. This will reduce their total number. Performance of everything that has been enumerated will make it possible (according to preliminary calculations) to save about 20 million rubles per year in the entire branch.

The objective necessity for improving the system of management under the new conditions is determined by the change in the subjects and means of labor, production technology and the organization of work, management methods, and the organizational forms and staff structure of management.

An optimum management structure, together with optimum forms in the organization of production, presupposes creation of an appropriate management staff responsible for solving production, socioeconomic and scientific-technical problems. The management staff must be economical, it must react responsively to any sort of hitches in the organization's work, and must eliminate them quickly. This is possible if the management staff is brought as close as possible to actual production. Only under such conditions will the management staff solve directly the problems related to the course of production rather than serving as an intermediate level for communicating orders and commands and for passing on information from reports. That has been the source of the lack of correspondence between the level of development of production and the structure of the management staff. This is especially characteristic of the superior and middle tiers of management of water management

construction: there has been horizontal and vertical duplication of management functions, managerial subdivisions have been overloaded with passing on all types of information, and the load has not been uniformly distributed on the management staff.

High requirements are being imposed on the management staff since the November (1982) Plenum of the CPSU Central Committee, at which particular attention was paid to increasing the level of organization and discipline at all levels of management. That is why it is necessary to solve such problems as defining standards of management capability, the level of centralization and decentralization by functions, determining the labor intensiveness of every function, determining the standard size of the management staff, and establishing the optimum information flows. When the management staff is being given its vertical shape, in our opinion, a determination should be made as to which functions should be performed by the higher bodies as against the lower ones.

Among the scientific problems in the improvement of management in the branch there is a great urgency in research in the field of raising the level of management capability at all levels, and this also applies to the field of the socioeconomic aspects of management. Here we mean by management capability the ability of the management system to perform its functions in accordance with the assigned goal, to find and correct in good time deviations from the planned patterns of activity and to ensure achievement of the end results at the lowest cost.

Management capability is influenced by a number of factors, among which the most important are these: the hierarchical pattern of the management structure, the breadth of the management capability, the level of concentration and specialization, the number of production relations and the level of centralization of management functions, and the extent to which production operations are scattered. The level of their influence on management capability varies, as do the relations between them.

Determining these dependent relationships and establishing their relationships optimally from the standpoint of management capability, along with discovering new factors influencing management capability and a knowledge of the tendencies will make it possible to determine in each specific case the most optimum organizational form, structure and staff for the management of production.

There is an urgency in research on the socioeconomic aspects of management to determine the indispensable qualities of managers as a function of the level of management and the specific nature of the activity of organizations from the standpoint of their interrelationship with the end results. It is advisable to establish the interrelationship between the set of management attributes, the socioeconomic structure of the collective, and the results of their activity. It is also indispensable to study the causes of management personnel turnover. On the whole taking socioeconomic factors in the management of production into account can yield a 10-15-percent rise of labor productivity. What we have said above covered only a part of the directions and

problems in improvement of management in the branch, but they are also indicative of the very large and still untapped potential for increasing the efficiency of production.

In the drafting of measures to improve management it is indispensable to take into account that mistakes in this field are more dangerous than in any technical design, since an error in managerial activity may and will become an error of many entities, that is, the collective at the bottom level, the primary organization, and so on, which is why a thoroughly scientific approach is necessary. This is a task of science within the branch.

What we have said above concerns the practical and scientific problems of improving management within the branch, but the ministry's relations with other ministries and departments of the country's agroindustrial complex and mainly with agricultural authorities are also quite important, and sometimes even essential. Since it is a specialized branch serving agriculture from the standpoint of creating the fixed production and nonproduction capital of kol-khozes and sovkhozes, the USSR Ministry of Land Reclamation and Water Resources structures its relations directly with agricultural authorities on the basis of an interest in achieving the end results in agricultural production.

Water management construction organizations at the rayon level are not part of agroindustrial associations. But this does not preclude coordination of the activity of water management construction organizations. When the regulation on the RAPO is being worked out, coordination must be accomplished through the system of the following organizational relationships:

- i. the choice of the reclamation project for construction is made by kol-khozes and sovkhozes and approved by the agroindustrial association;
- ii. the project plan for construction of the reclamation project is drawn up by the project planning institutes in the system of the USSR Ministry of Land Reclamation and Water Resources, and the project plan is examined by entities in the agroindustrial complex jointly with water management organizations;
- iii. in the shaping of annual and 5-year plans the starting dates and sequence of construction on a project are fixed with consent of kolkhozes and sovkhozes by the rayon agroindustrial association and are accepted for performance by water management construction organizations and directorates of the reclamation systems under construction;
- iv. acceptance of reclamation systems for operation which have an estimated cost exceeding 3 million rubles is done by commissions appointed by the councils of ministers of union republics, and the annual acceptance of irrigated and drained land is done by commissions appointed by oblast (kray) ispolkoms. The members of the commissions must include representatives of agricultural authorities as well as of kolkhozes and sovkhozes;
- v. water management construction organizations shall be accountable to kol-khozes and sovkhozes for the quality of construction of reclamation systems

not only in the process of construction and acceptance for operation, but also during the first year of operation; they shall issue warranty certificates (garantiynnye pasporta) to the farms.

Operating organizations, whose activity is directly related to the technological process of the production of agricultural products and the creation of conditions for obtaining high yields (in this case through reliable functioning of reclamation systems) have a special role in the agroindustrial complexes. These organizations perform the following functions: operation of reclamation systems and water management installations of interfarm importance, optimum water use in reclamation systems, supervision over the condition of irrigation and drainage systems from the standpoint of reclamation, they maintain the optimum water regime on drained land, they are concerned with the technical improvement of reclamation systems, they extend technical aid to kolkhozes and sovkhozes in operation of the intrafarm network, and so on.

That was the basis for including the operating water management organizations within the RAPO, which approves the volume and types of repair-operation work and the place and time of its performance. It is desirable in this connection that the entire intrafarm reclamation network be put on the balance sheet of the operating services and financed from budget appropriations, above all on farms which are not economically strong.

On the basis of what we have said, interrelations of operating organizations within the RAPO follow these main lines:

- i. they bear full responsibility and guarantee the normal functioning of interfarm canals, hydroengineering complexes, dams, gathering and drainage systems, and other hydroengineering installations so that irrigation water is supplied in good time to kolkhozes and sovkhozes and drainage water is carried away;

- ii. under contracts with the farms they provide technical servicing of intrafarm reclamation systems and installations. Technical servicing includes performance of major and current repairs on the reclamation network and installations which are on the balance sheet of kolkhozes and sovkhozes, and they also perform other work to maintain intrafarm systems in proper working condition;

- iii. they extend aid to farms in organizing the irrigation of agricultural crops, they monitor the use of irrigation water, and they also work jointly with agricultural authorities in organizing effective use of sprinklers and irrigation equipment. They introduce improved irrigation equipment and methods;

- iv. they keep records on use of irrigated and drained land and take part in keeping records of the costs of production of agricultural products on reclaimed land.



The results of the performance of operating organizations and the material incentives for their workers are estimated as a function of the gross production of agricultural output and the yield achieved on irrigated and drained land.

We consider the main direction in raising the efficiency of the operating service in the agroindustrial complex to be its gradual conversion to cost accounting, which will guarantee full interaction between water management organizations on the one hand and kolkhozes and sovkhozes on the other. Certain experience has already been gained in this from the example of the functioning of the "Poliv" rayon production associations and the operating organizations in BSSR.

The form of the interrelations between the farms of the RAPO and the "Poliv" RPO [rayon production association] is arrived at on a contract basis. The obligations of the parties are stipulated, along with the procedure for delivery and acceptance of work, settlement procedure, and the liability of the parties. Technological charts for raising farm crops on irrigated land, calculation of the estimated costs of irrigation per hectare irrigated and per hectare of area served are appended to the contract. Settlement is made with customers for the amount of work done at the actual cost.

When intrafarm water-use plans are drawn up, consideration is given to data on the proportion of land irrigated, the crop balance, the irrigation regime, the intervals for irrigating each crop, and the conditions for soil improvement. Plans are approved along with the entire system of agrotechnical measures and the organization of operations on the farm. The piece-rate-plus-bonus system of remuneration is used for worker incentives.

In order to give a material incentive to workers employed in irrigating farm crops to increase the production of agricultural products and to reduce costs, a bonus is paid for overfulfillment of the plan for achieving the gross agricultural output in the amount of 20 percent of the value of the output exceeding the plan.

The experiment to convert operating water management organizations in BSSR to cost accounting is of interest. The service charge (for repair and operating work) has been made the basis of cost accounting there.

The results of the performance of cost-accounting operating organizations have shown that the new system guarantees a rise in work discipline, improves the attention paid to water, and reduces water losses, and improves the technical condition of interfarm systems.

Certain complications have also been revealed in the transition to cost accounting--these are that the price of water does not act sufficiently as an incentive: the price does not always compensate the cost of production; water users have little incentive for economical water use; and there are complications in reproduction of fixed capital. Problems also need to be solved in remuneration and the bonus system, the distribution of profit, accounting and reporting.

Yet another important potential for increasing effectiveness in operation of reclamation systems should be the widespread dissemination of the brigade contract. In our opinion, the start-to-finish contract (patterned after the one used in construction), which takes into account the technological chain in production of the agricultural product, might be the most effective form of the brigade contract here.

The first results in the performance of water management organizations as part of agroindustrial associations have revealed certain problems. They include first of all such problems as including in fulfillment of the plan of water management construction organizations the costs related to their being diverted to agricultural operations; transfer of the entire intrafarm reclamation network to the balance sheet of operating organizations; and enhancement of the responsibility of reclamation personnel for putting projects into operation on schedule.

There is also a need for more thorough study of the experience with the operation of water management organizations within agroindustrial associations so as to take into account zonal peculiarities. This would make it possible to issue concrete and scientifically sound recommendations on the improvement of management.

The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improvement of Agriculture's Economic Relations With Other Sectors of the Economy" provided that beginning in 1983 such indicators as the growth of production of the output of cropping on reclaimed land of farms which are served by comparison with the level achieved over the previous 5 years, by virtue of the rise in the yield of farm crops, achievement of the rated yield on new land brought under cultivation, improvement of contractual obligations in serving kolkhozes, sovkhozes and other agricultural enterprises and organizations, and optimum use of water resources and physical resources would be used in evaluating the performance of water management repair and operating organizations and "Poliv" rayon production associations and in establishment of the rates used in forming the material incentive fund and the fund for social welfare and cultural programs and housing construction.

Implementing the provisions referred to above will make it possible, in our opinion, to substantially improve the effectiveness of management and increase the accountability of reclamation personnel for the end results of agricultural production and provide the most optimum combination of the regional and sectoral principles in management of land reclamation.

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## LAND RECLAMATION AND WATER RESOURCES

### RECLAMATION PROGRESS IN USSR

Moscow ARGUMENTY I FAKTY in Russian No 52, 27 Dec 83 pp 1-2

[Article by Yu. Below: "Labor Makes the Land Fertile"]

[Text] Our class adversaries are making considerable efforts to blacken and distort the party's agricultural policy in the present stage. Without taking the real facts into account, they are attempting to deny the intensive character of the development of our country's agriculture, saying that it has developed and is developing according to an extensive strategy. Certain Western specialists write a great deal about fluctuations in gross harvests from year to year and about the supposedly low pace of land reclamation in the USSR.

As a matter of fact, there have been fluctuations in certain years, and they were related above all to the adverse weather and climatic conditions. Agriculture in the USSR is carried on under problematical natural conditions. Nearly two-thirds of the plowland, half of the hayfields, and an absolute majority of meadows and pastures are in zones with insufficient moisture. At the same time large areas of land, especially in the central and northwestern zones, are excessively moist or boggy.

#### An Important Factor

Given these conditions, it was emphasized at the 26th party congress, the further development of reclamation is one of the basic factors in the intensification of agriculture and in speeding up the pace of development of agricultural production. Unstinting attention is being paid to this important factor. The augmented economic potential has afforded the possibility of carrying out an extensive program for raising soil fertility, which is based on the data of science and on progressive practice.

The May (1966) Plenum of the CPSU Central Committee has worked out major measures for extensive land reclamation. Particular attention is being paid to augmentation of the productive forces of water management organizations; more than 1.6 million workers and specialists are working in them. The stock of reclamation machines and installations has grown substantially. Over the last three 5-year periods capital investments in land reclamation have increased more than fivefold. In the 10th Five-Year Plan alone 35 billion rubles were spent for these purposes.

Whereas in the recent past land reclamation embraced predominantly the regions of Central Asia, the Transcaucasus and the Baltic Republics to some extent, it is now being carried out in all zones of the country. There is hardly a single kolkhoz where some operations to improve the land would not be carried out. In the European part of the USSR the area of irrigated land has grown from 2 to 7.5 million hectares in three 5-year periods. Irrigation agriculture has been developing at a high pace in the Volga Region, in the Northern Caucasus, and up-to-date reclamation systems have been activated in the Far East. In the Ukraine the area of irrigated land has increased four-fold and now amounts to more than 2 million hectares. There has also been an increase in the volume of irrigation agriculture in its traditional regions--Central Asia, the Transcaucasus, and Kazakhstan. Significant measures to develop land reclamation have been carried out in the Nonchernozem Zone of RSFSR. Much has been done to drain land in Estonia, Latvia, Lithuania, the Ukraine and Belorussia.

A particular feature of the present stage in reclamation work is the transition from solving local problems to the construction of large-scale irrigation and drainage engineering systems at the technical level of the present day.

Among the most important irrigation systems and construction projects activated in recent 5-year periods we might mention the Great Stavropol Canal, the Irtysh-Karaganda Canal, the Krasnodarskoye Reservoir on the Kuban, the Nikolayevo Hydroengineering Complex on the Don River, the Ural-Kushum drainage and irrigation system, the first and second phases of the 400-km Northern Crimea Canal, which makes it possible to irrigate more than 200,000 hectares of land in the southern Ukraine, and a number of other large-scale projects. Millions of hectares of land for growing animal feed have been improved, and tens of thousands of installations for collecting water and watering animals in pastures have been built. Resources of the state and kolkhozes were used in the 10th Five-Year Plan to activate more than 34 million hectares of watered pastures, and in the first 2 years of the current 5-year period the amount is 8 million hectares.

Our country occupies first place in the world in the pace and volume of reclamation work. In 1982 the stock of reclaimed land on all categories of farms exceeded 36 million hectares, 18.6 million hectares of irrigated land and 17.5 million hectares of drained land. Kolkhozes and sovkhozes possess large areas of renewed land.

At the present time the country's kolkhozes and sovkhozes are obtaining the entire harvest of rice and cotton, about 40 percent of the shelled corn, two-thirds of the vegetables, half of the grape and fruit harvest, and one-fourth of animal feed from reclaimed land.

#### A High Return

Bourgeois researchers, striving to play down the importance of reclamation work in the USSR, advance the thesis that in the Soviet Union they manifestly "exaggerate the effectiveness and profitability of reclaimed land." These attempts are also refuted by our reality.

In the production of farm products the role of reclaimed land is growing every year. It is sufficient to note that land reclamation accounts for as much as 70 percent of the total growth of production of the output of plantgrowing. Irrigated land, for example, which occupies 11 percent of the plowland and perennial plantations, affords 36 percent of the total output of plantgrowing.

The figures below speak eloquently about the effectiveness of reclaimed land. In the 10th Five-Year Plan every irrigated hectare yielded an output 5.8-fold greater, and every drained hectare 1.5-fold greater than the hectare which had not been drained or irrigated. The yield of cropping on the irrigated hectare averages 792 rubles, while in dry farming it is 136 rubles. The output of grain is twofold greater, the output of vegetables 1.5-fold greater, and the output of feed crops 3.2-fold greater on the hectare that has been renewed than on the hectare that has not undergone either drainage or irrigation.

Area of Irrigated and Drained Land on Kolkhozes, Interfarm Enterprises, Sovkhozes and Other State Farms, millions of hectares

<u>Land</u>	<u>1965</u>	<u>1975</u>	<u>1980</u>	<u>1982</u>
Irrigated	9.8	14.2	17.5	18.6
Drained	7.5	10.1	12.5	14.2

Activation of Land Whose Irrigation and Drainage Has Been Financed by the State and Kolkhozes, thousands of hectares

<u>Land</u>	<u>1965</u>	<u>1970</u>	<u>Annual Average</u>		<u>1981</u>	<u>1982</u>
			<u>1971-1975</u>	<u>1976-1980</u>		
Irrigated	394	386	913	759	643	637
Drained	708	815	872	729	696	685

#### Specific Tasks

A great deal of attention has been paid in the country's Food Program to further development of reclamation work. Plans call for bringing the area of irrigated land up to 20.8 million hectares in 1985 and 23-25 million hectares in 1990; the area of drained land will be 15.5 and 18-19 million hectares, respectively.

Specific tasks have been defined for all the union republics. In RSFSR, for example, there are plans to complete construction of the Komsomol and Volga irrigation systems in Saratov Oblast, the Gorodishche system in Volgograd Oblast, and also the Krasnodar system, to continue work to improve land with irrigation and drainage in the Nonchernozem Zone. In UkSSR at least 1 million hectares of irrigated land and 1.3 million hectares of drained land are to be brought under cultivation during the decade. In Belorussia 950,000-970,000 hectares of excessively wet and boggy land is to be drained. In KaSSR plans call for bringing 820,000 hectares of irrigated land into use and

for bringing a water supply to at least 22 million hectares of pastureland in desertic and semiarid areas. A large volume of reclamation work is also planned in the other union republics.

Zones of guaranteed production of grain, especially corn, are being created in regions with irrigation agriculture. By the end of the current 5-year period the guaranteed production of grain on irrigated land should amount to 15 million tons, and by 1990--20-22 million tons. The production of animal feed is growing substantially on reclaimed land--from 63 million tons of feed units in 1985 to 80-82 million tons by the end of the decade, and irrigated land for growing feed will be established in association with livestock-raising complexes. Near large cities and industrial centers the creation of zones with guaranteed production of vegetables and early potatoes on irrigated land will be completed. Even in 1985 the output of plantgrowing obtained from irrigated and drained land will increase 32 percent over 1980.

Yu. V. Andropov noted at a conference in the CPSU Central Committee headquarters of the first secretaries of central committees of communist parties of the union republics and of party kraykoms and obkoms held 18 April 1983 that particular concern should be paid to effective use of reclaimed land, above all irrigated land, and to optimum and economical consumption of water resources so as to guarantee that a high yield is obtained.

The CPSU Central Committee constantly monitors fulfillment of assignments of the Food Program and the performance of land reclamation. Recently the Politburo of the CPSU Central Committee discussed the question of progress of work to carry out the program for transformation of the Nonchernozem Zone of RSFSR. Particular note was taken of the need to speed up the pace of development of agriculture and related branches in that region, to increase the yield from the improved hectare for fastest performance of the task of transforming the Nonchernozem Zone into a zone of highly developed cropping and animal husbandry. The question was also taken up of drafting the long-range program for land reclamation in order to create a guaranteed source of food and to raise the prosperity of the Soviet people.

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## LAND RECLAMATION AND WATER RESOURCES

### MEETING ON RECLAMATION ATTENDED BY VOROTNIKOV

Moscow SEL'SKAYA ZHIZN' in Russian 6 Jan 84 p 2

[Article by P. Shcherbakov: "Increasing the Yield on Renewed Land: Meeting of RSFSR Council of Ministers"]

[Text] A meeting of the RSFSR Council of Ministers was held on 5 January; representatives of union and republic ministries and departments took part, as well as chairmen of councils of ministers of ASSR's, krayispolkoms and oblispolkoms, and senior officials of local agricultural and water management authorities.

The topic "Measures To Fulfill State Plans for Land Reclamation, To Increase the Effectiveness of Utilization of Improved Land, and Tasks Involved in Drafting the Long-Range Program for Reclamation Measures in the RSFSR" was discussed in the light of the requirements of the Politburo of the CPSU Central Committee.

Year after year reclaimed land in RSFSR has been expanding, so that it now occupies 10 million hectares. Major irrigation systems have been built in the Volga Region and Northern Caucasus, and land is being renewed at a fast pace in the Nonchernozem Zone, Siberia, the Far East, and other regions of the republic. There is no doubt that this is one of the most important factors in intensification of agricultural production. The renewed tracts, which occupy 4.5 percent of farmland, yield about 15 percent of the output of cropping. Now not only individual farms, but indeed entire regions are achieving yields of 50-60 quintals of grain, 400-500 quintals of vegetables, and 100-120 quintals of alfalfa hay from every hectare irrigated. Many kol-khozes and sovkhoses in Krasnodar and Stavropol Krays, Kabardino-Balkar ASSR, and Moscow, Leningrad, Astrakhan and other oblasts are making effective use of reclaimed land and are rapidly developing their own economic operation.

Yet still the address of L. B. Yerminev, first deputy chairman of RSFSR Council of Ministers, and the speeches of participants in the session concentrated principal attention on correcting shortcomings, on fuller utilization of existing potential, and on increasing the return from the renewed land. After all, in the first 3 years of the 5-year period the republic's reclamation workers have fulfilled the plan for activation of irrigated and drained land at only 87 percent, and they are in debt 259,000 hectares to kol-khozes and sovkhoses.

The standard time allowances have been substantially exceeded in construction of certain water management projects. What kind of efficiency of capital investments, it was emphasized at the session, can there be when, say, the Bagayevskiy-Sadkovskiy irrigation system in Rostov Oblast has already been under construction for 13 years now? The situation is similar at the Chernovoye irrigation system in Orenburg Oblast and at major projects in Kurgan Oblast and Krasnoyarsk Kray.

The low pace of soil-improvement work was referred to in the session as an alarming phenomenon. In recent years the volume of this work in the republic has not only not grown, but has dropped off noticeably. After all, it is soil improvement at the lowest cost that yields a rapid and sizable return. The condition of farmland today on farms in Novgorod, Kalinin, Smolensk, Kirov, Kurgan, Tomsk, Chita, Kaliningrad and a number of other oblasts is such that soil-improvement work needs to be done on a large area there. The fields have still not been enlarged, they are still boggy and overgrown with brush, and the stones have not been removed. Meanwhile the area of renewed plowland and other land will grow slowly there in spite of the large volume of water management construction.

The experience of the Tyumen reclamation workers, kolkhoz and sovkhoz personnel, Sel'khoztekhnika personnel and personnel of enterprises in the oblast acting as patrons, which thanks to soil-improvement operations have greatly improved and expanded their land, is instructive in this regard. Moreover, all of this was done in a coordinated way, according to plans and under the supervision of rayon agroindustrial associations. They brought the new land under cultivation by clearing low-grade forests and brush and by draining, recultivating and plowing up unused land. Last year alone the farms in the oblast received 60,000 additional hectares. All of this made it possible to expand planting, to convert to more progressive technologies in cultivating the land, and to speed up return of the resources invested in reclamation.

Considerable attention was paid at the meeting to seeking ways of reducing the energy and capital intensiveness of water management installations. The practical experience of reclamation workers in a number of oblasts and autonomous republics provides convincing evidence that these requirements are met by estuary irrigation and also irrigation systems using the local runoff and subsurface water. To be specific, the initiative of the Stavropol Reclamation and Agricultural Workers, who have guaranteed moisture not only to 360,000 hectares which have engineering systems, but also to 100,000 hectares of so-called initiative irrigation, is deserving of praise. Last year every irrigated hectare in the kray yielded more than 67 quintals of feed units. Nor was that the limit: V. Makarov's link on the "Put' k kommunizmu" Kolkhoz in Stepnovskiy Rayon harvested an average of 157 quintals of feed units on 1,200 hectares.

But the participants in the meeting had a solid basis for criticism of those senior officials of ministries and departments, local soviet and economic authorities who have not made a thorough study of the problems of increasing the efficiency of utilization of reclaimed land. As the main speaker noted in his address, nearly 3 million hectares which were once renewed differ



little in their productivity from ordinary land. Every year the country fails to receive hundreds of thousands of tons of various products from that land.

The low return on capital investments in reclamation also depends to a certain degree on warped planning. Cases are still not uncommon when on some farms the reclamation people have not been improving the land for years, while on others the amount of construction far exceeds the ability to develop the land. How can this be explained except by a lack of coordination in the work of agricultural and water management authorities and the failure to work thoroughly enough in preparing plans for construction of reclamation projects and agricultural development?

It is important, the speakers emphasized, that in planning and fulfilling assignments RSFSR Gosplan, RSFSR Minvodkhoz [Ministry of Land Reclamation and Water Resources], Glavnechernozemvodstroy, RSFSR Minsel'khoz [Ministry of Agriculture], and RSFSR Minplodoovoshchkhov [Ministry of Fruit and Vegetable Industry] achieve the comprehensive approach and guarantee optimum use of and a high return from the resources invested.

Particular attention was paid to the quality of construction, to the reconstruction of outdated reclamation systems, to the economical consumption of water resources, to the reliable work of the operating service, to creating new specialized sovkhozes, to the application of scientifically sound cropping systems and advanced forms of the organization of work.

The participants in the session took up the problems of future development of land reclamation in the republic and defined strategies for comprehensive development of the renewed land in view of future needs.

The RSFSR Council of Ministers called upon ministries and departments and also the councils of ministers of union republics, krayispolkoms and oblispolkoms to correct the shortcomings which have been detected and to draft and carry out measures aimed at unconditional fulfillment of plans for reclamation construction and pay particular attention to increasing the yield from the hectare of land that has been reclaimed.

V. I. Vorotnikov, chairman of the RSFSR Council of Ministers and member of the Politburo of the CPSU Central Committee, spoke in the meeting.

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## LAND RECLAMATION AND WATER RESOURCES

### NURIYEV, GORBACHEV ATTEND COMMISSION MEETING

Moscow SEL'SKAYA ZHIZN' in Russian 30 Nov 83 p 1

[Text] The regular session of the Commission of the Presidium of the USSR Council of Ministers for Affairs of the Agroindustrial Complex discussed on the basis of the tasks set by Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet, concerning guaranteeing a rapid and high yield from irrigated and drained land, the proposals of USSR Minsel'khoz [Ministry of Agriculture] and USSR Minvodkhoz [Ministry of Land Reclamation and Water Resources] on increasing the effectiveness of the use of reclaimed land and on raising the yield of farm crops on that land in 1984.

Commissions of presidiums of councils of ministers of union republics for affairs of the agroindustrial complex, USSR Minsel'khoz, USSR Minplodoovoshch-khoz [Ministry of Fruit and Vegetable Industry], USSR Minvodkhoz, USSR Goskomsel'khoztekhnika, and councils of republic (ASSR), kray, oblast and rayon agroindustrial associations were ordered to carry out an effort to bring under cultivation all previously unused irrigated and drained land, to specify on every farm the crop balance, and to take measures to ensure that kolkhozes and sovkhoses receive high-quality seed, and to complete repairs on irrigation and sprinkling equipment in the shortest time. Allocate to farms with reclaimed land the necessary amount of manufactured fertilizer, pesticides and other physical resources. Assignments were set for 1984 concerning the programmed raising of grain crops and feed crops.

The task was set of wide introduction of the brigade contract and progressive forms of remuneration in operations to produce agricultural products on improved land. Farms have been staffed with qualified operators and mechanics for sprinklers and pumping stations.

Z. N. Nuriyev, deputy chairman of the USSR Council of Ministers, chaired the meeting of the commission, in which responsible officials of the CPSU Central Committee, USSR Gosplan, USSR Gosstabs, commission chairmen of presidiums of councils of ministers of union republics for affairs of the agroindustrial complex, chairmen of a number of councils of oblast, kray and republic (ASSR) agroindustrial associations, heads of interested ministries and departments, and scientists took part.

M. S. Gorbachev, secretary of the CPSU Central Committee and member of the Politburo of the CPSU Central Committee, spoke in the meeting of the commission.

## LAND RECLAMATION AND WATER RESOURCES

### NURIYEV ATTENDS MEETING AT UNION KOLKHOZ COUNCIL

Moscow SOVETSKAYA ROSSIYA in Russian 14 Dec 83 p 1

[Text] The question of ways of increasing the effectiveness of the use of reclaimed land was discussed in a session of the Union Council of Kolkhozes held 13 December in Moscow in the light of the requirements arising out of the instructions of Comrade Yu. V. Andropov, general secretary of the CPSU Central Committee and chairman of the Presidium of the USSR Supreme Soviet.

Those who spoke noted that as a result of consistent implementation of the agricultural policy of the CPSU the area of reclaimed land on kolkhozes has reached 15.6 million hectares. At the same time there are still many shortcomings in its use. On certain farms the yield per reclaimed hectare is still low.

The Union Kolkhoz Council recommended that an inspection be made everywhere of farmland so as to bring all irrigated and drained fields under intensive cultivation. Repairs of irrigation equipment have to be completed in good time: by 15 April on farms in the country's southern regions and by 1 May of the coming year in other regions.

Z. N. Nuriyev, deputy chairman of the USSR Council of Ministers, took part in the work of the Union Kolkhoz Council.

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### IRRIGATION OF LAND IN SYSTEM OF AGROINDUSTRIAL COMPLEX ,

Saratov STEPNYYE PROSTORY in Russian No 1, Jan 84 pp 34-35

[Article by I. P. Kruzhilin, doctor of agricultural sciences, VNIIOZ [All-Union Scientific Research Institute of Hunting and Game Raising]]

[Text] In the present stage the agricultural sector is represented by the sphere of production of farm products and by the supporting branches of industry and services for transportation, storage, processing and sales of finished products. Water management and road construction are important components of it.

Irrigation of land, as an integral part of the agroindustrial complex (APK), cannot develop in isolation in the context of intersector integration, with no relation to the other branches of the agroindustrial sector and agriculture as a whole. At the same time, in the systematic growth of production of the products of agriculture the particular role of irrigation in the system of the APK is determined by the peculiar natural conditions of our country. They are characterized by the fact that more than 65 percent of the plowland, including about 70 percent of all the area planted to grain crops, is located in zones with insufficient and unstable moisture. When soil moisture is deficient, such factors in the intensification of agriculture as fertilizer, intensive varieties and hybrids, progressive technologies for raising farm crops and others do not have their full effect. All of this adversely affects the economics of kolkhozes and sovkhoses, the grain balance, making irrigation in the arid part of the country one of the most important factors in the efficiency of the entire APK.

Consistent fulfillment of the scientifically sound program for extensive reclamation drafted at the May (1966) Plenum of the CPSU Central Committee has made it possible to bring the area of reclaimed land in the country up to 31.7 million hectares. The gross output of the products of plantgrowing on that land was 15.8 billion rubles in 1982. In money terms the productivity of the irrigated hectare averages 5.8-fold more than the nonirrigated hectare. Land that has been drained or irrigated has become the source of the entire cotton and rice harvest, 75 percent of the vegetables, about 50 percent of the fruit and grapes, 38 percent of the shelled corn, and 25 percent of rough and succulent animal feed. Nevertheless, the efficiency of its use, as noted at the session of the Politburo of the CPSU Central Committee held last September, is not meeting the country's needs.

In the country as a whole the productivity per hectare of irrigated land on kolkhozes and sovkhozes is 20 percent lower than on state variety testing plots. A still greater gap is observed in a comparison with the achievements of front rankers in irrigation agriculture and the data of scientific research institutions. The productivity on the irrigated hectare averages 65 quintals of feed units on the farms of Stavropol Kray, while in the zone of the Northern Caucasus as a whole it drops down to 42, in the Volga Region 30, in the Northwest, Central, Volga-Vyatka and West Siberian natural and economic regions to 23-25 quintals, and in the East Siberian Region to 12.5 quintals of feed units.

Irrigation agriculture is among the largest consumers of fresh water, since every year it takes 150 cubic kilometers of water from the sources of irrigation. For the development of irrigation forecast by 1990 and taking into account an increased yield of grain crops to 50 quintals per hectare of grain and 50-80 quintals per hectare in terms of feed units, and a volume of production of raw cotton up to 10.5 million tons, full water consumption for agriculture will increase to 240-290 cubic kilometers per year. Given the shortage of fresh water that already exists, this kind of increase of water consumption, 80 percent of which is considered irrecoverable, generates a new problem--thrifty and optimum use of water resources. Consequently, scientific research institutions in the field of irrigation agriculture now have to solve three interrelated and very important problems: sharply increasing the yield on irrigated land, maintaining a progressive increase in the fertility of soil, and guaranteeing economical use of irrigation water.

The May (1982) Plenum of the CPSU Central Committee set the task of radically improving management of agriculture by setting up rayon (RAPO) and oblast (kray) agroindustrial associations (OAPO). They are called upon to unify all the related branches, including irrigation, and to synchronize their development, subordinating it to the principal purpose--obtaining the maximum yield from capital investments in terms of the end product. The building of irrigation systems with interdepartmental centralized supervision by the RAPO or OAPO will make it possible to use efficiently the time and resources devoted to their construction and operation. This requires that all enterprises which are part of the APK operate on the principle of cost accounting (khozraschet).

Introduction of economic relations between reclamation organizations and agricultural organizations is a basic condition for full-fledged and motivated participation of enterprises carrying out hydro and reclamation projects in the system of the APK. Not only the irrigated land put into service and assimilation of capital investments for construction, but also the assimilation of the irrigated land within the standard time allowed and attainment of its rated yield might become a criterion in evaluating the performance of construction organizations. In that case paradoxical situations would not come about such as the one that occurred on our institute's OPKh [experimental and demonstration farm] "Rossiya." Here the assimilation of state resources to build the irrigation network and the activation of land were completed in 1984. The water management organizations did not undertake to build facilities for social, cultural and consumer services and housing, which is

creating serious difficulties in assimilating the production capacity and is diminishing the effectiveness of the irrigation. But this is not reflected in any way in the production performance of construction organizations. When RAPO's are formed in the zone of existing irrigation and drainage systems it is best for the boundaries of the systems and the sections to coincide with the boundaries of rayons. This will make it possible to improve management of the entire complex and technological operations and to increase the influence of science on the production performance of the agroindustrial sector.

Scientifically sound systems of irrigation agriculture are the basis for a systematic rise in the fertility of soils and the yield of agricultural crops. Coordinated application of the interrelated set of agrotechnical, irrigation and drainage, organizational and economic measures in raising farm crops has made it possible for the "Meliorator" Sovkhoz in Nikolayevskiy Rayon of Volgograd Oblast to raise the productivity on irrigated land to 75-80 quintals of feed units per hectare. On the OPKh "Rossiya" optimalization of the crop balance, proper selection of types of crop rotation and their location, combination of soil and crop practices with irrigation and the application of fertilizer are making it possible to substantially increase the yield and gross harvests of farm crops. The share of output obtained from irrigated land in cropping is now 47 percent, and by 1990 it will rise to 80 percent.

According to the data of research conducted by the Laboratory of Crop Rotation and Soil Treatment of VNIIOZ, introduction of scientifically sound crop rotation and optimum saturation of crop rotation with grain and feed crops can raise the average productivity to 95-110 quintals of feed units per hectare on irrigated land. These crop rotation patterns call for mandatory inclusion of crops of alfalfa (25-30 percent), corn for shelling (12-18 percent), and postharvest crops and catch crops (less than 30 percent of the area). Concentration of the efforts of various departments supporting agriculture is making it possible to introduce more widely programmed crops on irrigated land, which we consider to be the most important potential for increasing the efficiency of cropping. The management of the water regime and the nutrient regime, combined with use of forecasting, correctional and operational programs make it possible even now to go to grain yield levels of 60 quintals per hectare for winter wheat, 40-60 quintals for spring wheat, 100-200 quintals of alfalfa hay, 80-100 quintals of shelled corn, and 20-40 quintals per hectare of shelled soybeans. The level of the programmed yield in each specific case must be fitted to the natural and physical resources, the potential of the variety used, and the economic indicators for achieving the end result.

Under the new conditions of the management of agriculture large opportunities are opening up for correcting bottlenecks in the overall technology of production of farm products from planting to consumption. The need has arisen to eliminate the gap between the low productivity of labor in surface irrigation and the high productivity in plowing, cultivation, the application of fertilizers and other operations. It is very important at this point to concentrate the efforts of personnel of scientific institutions on replacing manual labor with mechanized labor throughout the entire technological chain from production to the processing of the product.

In the development of mechanized technologies for raising crops according to assigned programs, scientific research institutions have to take into account not only the ratio of the energy supply to labor and the assured supply of fertilizers, but also demographic tendencies. Wherever there is no expectation of a substantial inflow of manpower into agriculture efforts should be concentrated on creating labor-saving technologies using highly productive machines.

It has become indispensable to develop a method of determining the value of water supply and water removal. It should reflect criteria for estimating the costs of gathering and transporting water and also its use. The method ought to orient the activity of the APK not only toward increasing the yield per hectare on irrigated land, but should also stimulate action to preserve and augment the fertility of the soil and to use fresh water economically.

Creation of agroindustrial associations has not been fully coordinated with the functioning of sectoral scientific-production associations, which are a progressive form in the communication between science and production. Their existence makes it considerably easier to apply the advances of science in the practical operation of kolkhozes and sovkhozes. But because of their specific nature they have frequently not been included in the zone of activity of the RAPO, since they are located in different administrative rayons, and indeed they perform tasks which are unusual for RAPO's. Experimental stations and experimental-production farms of head institutes have turned out to be in the same situation. Their legal status in production and financing needs to be improved, and they have to have definite independence of action.

The agroindustrial associations make it possible to subordinate to a single plan of action the work of operating and construction organizations, agricultural authorities, kolkhozes and sovkhozes, along with industrial and transportation enterprises. This is the right way to achieve a high effectiveness of irrigation. All that is needed is to bind together all the operating and agrotechnical measures, to guarantee the reliable operation of irrigation systems and to subordinate their actions to the creation of the optimum water regime and nutrient regime of the soil. It should also be added that the plans for water use and water distribution have become an organic part of the production plans of farms using water and the RAPO as a whole.

Water management organizations, in our opinion, must not only supply water for irrigation, but also take upon themselves technological servicing of the network on the farm and the irrigation of farm crops under contract with the farms. This effort should be organized so that the primary levels of the operating service (we are referring to management of systems or individual sections of systems, the management of canals, hydroengineering complexes, pumping stations, and associations of "Poliv" RPO's, stations for hydrogeology and reclamation, and so on) are brought together in a single operating body directly associated with the technology for production of agricultural products within the framework of the RAPO, with payment to be made for the end result.

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## LAND RECLAMATION AND WATER RESOURCES

### BRIEFS

RECLAMATION FACTS, FIGURES--Over the last 10 years reclamation work has been done on more than 6.2 million hectares of land; 730,000 hectares of irrigated land and more than 2 million hectares of drained land have been brought under cultivation, and soil-improvement work has been done on an area of nearly 3.5 million hectares. More than 4 million square meters of housing and children's pre-school institutions with a capacity of 17,800 have been activated. At the present time there are 58 industrial enterprises in Glavnechernozemvodstroy [Main Administration for Land Reclamation in the Nonchernozem Zone]. Their gross output is 127 million rubles. [Text] [Moscow STROITEL'NAYA GAZETA in Russian 21 Mar 84 p 1] 7045

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